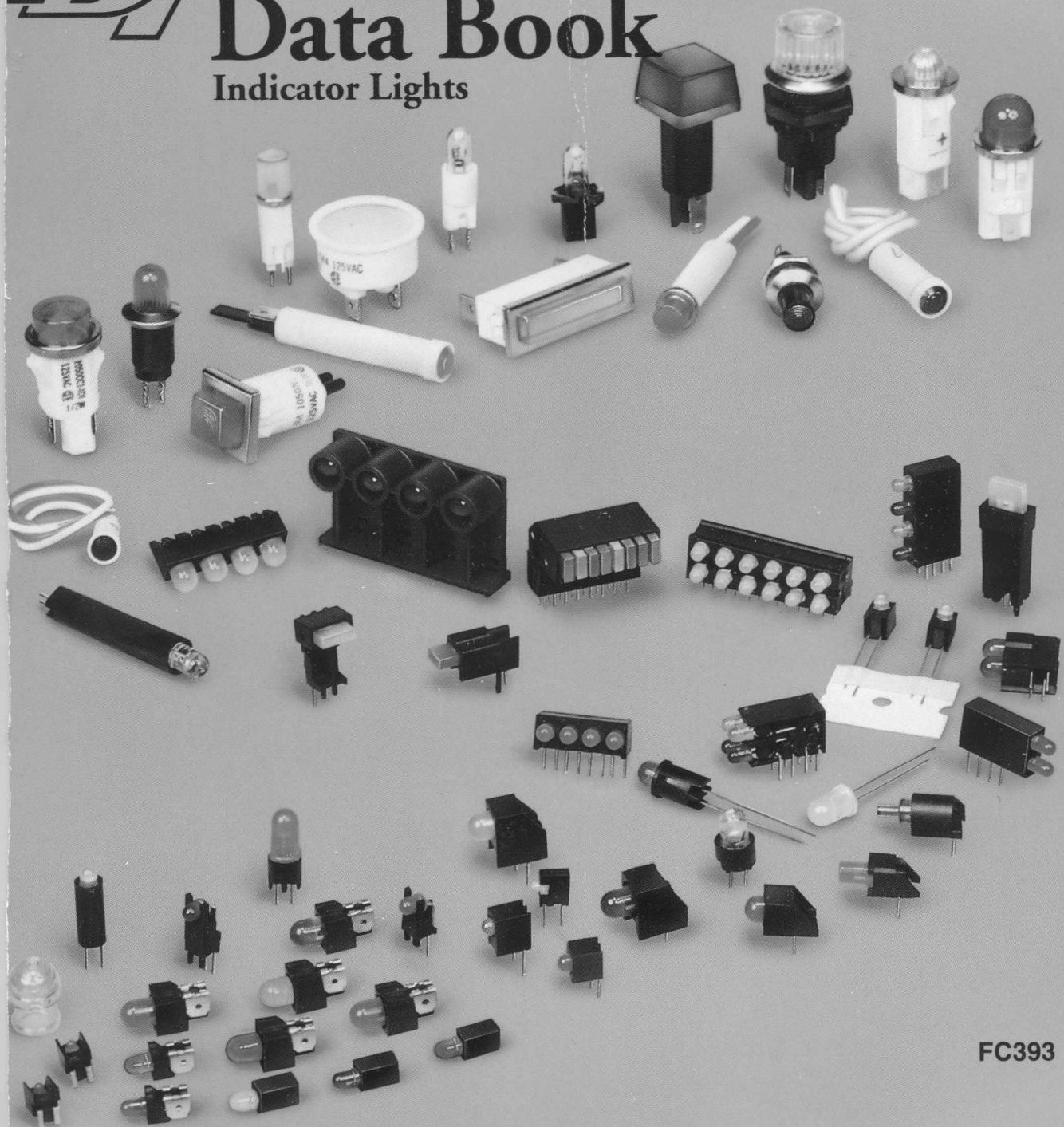




Design Engineers' Data Book

Indicator Lights



FC393

LED Optoelectronics • Incandescent • Neon
For Surface Mount, PC Mount & Panel Mount



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TECHNICAL NOTES

INCANDESCENT LAMPS

1

I. General Characteristics

Incandescent lamps consist of a resistive tungsten filament suspended by support wires within a vacuum inside a glass envelope. This general construction has not changed since the time of Thomas Edison. The filament of an incandescent lamp emits a bright white light over a wide viewing angle. This makes incandescent lamps an ideal source for illumination, backlighting and indication, particularly when high contrast or a wide variety of colors are needed. IDI miniature and subminiature incandescent lamps are available in voltages ranging from 1 V to 120V, and sizes up to the $\frac{1}{4}$ " diameter T-2 "pilot" and "indicator" slide base standards.

Incandescent filaments are susceptible to damage from mechanical shock or vibration and voltage spikes or transients. Generally, the higher the voltage—or, the lower the current at a given voltage—the more fragile the filament.

When shock or vibration are present and an incandescent lamp must be used, it is best to choose the lowest supply voltage available. Isolating the lamps as far as possible from the vibration source or cushioning the lamps will also help.

Incandescent lamps should not be connected across inductive loads, such as the coil of a relay or solenoid without some form of filter to prevent voltage transients from damaging the filament.

II. Life Ratings

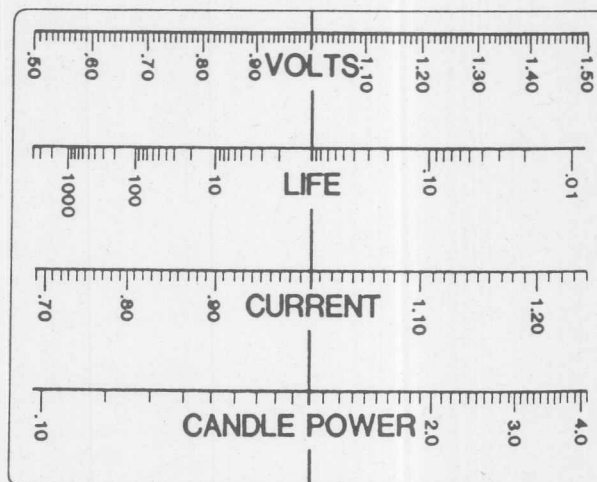
Incandescent lamp life ratings should be taken with a grain of salt. Life ratings are based on shock-free, vibration-free, ripple-free testing. Lamps are not turned on and off during life testing, so there is no thermal cycling. As mentioned above, vibration can also be a significant factor in field use of incandescent lamps.

Lamps with higher current ratings typically have larger diameter and/or shorter length filaments, and are, therefore, more rugged. A good example of this is the 2162 lamp, rated 10,000 hours life at 100 milliamps current, which IDI uses in non-relampable 12 volt incandescent assemblies. Some competitors use the 2182 rated 25,000 or 50,000 hours (depending on whose statistics you believe), at 80 milliamps. The reason IDI loses in the life ratings is not because the 2162 is cheaper—2182 is the same price—but because extensive testing by IDI and by our customers showed the 2162, with its shorter, thicker filament, far outlasts the 2182 in actual service. IDI lights are more reliable and last longer in field use.

Increased life can be obtained by "derating" the lamp—using it below rated voltage. This will diminish light output, but greatly increase lamp life. For example, a 28-volt lamp has over five times the rated life when operated at 24-volts.

To determine the operating characteristics of derated lamps, use the nomograph below.

NOMOGRAPH OF MULTIPLYING FACTORS



DESIGN VALUES



TECHNICAL NOTES

INCANDESCENT LAMPS

First, select the desired value for any one of the four parameters—% of Rated Voltage, % of Rated Current (in Amperes), % Luminous Intensity (in Mean Spherical Candela), Life Factor (a multiplier relating to rated life under static conditions).

Connect the parameters with a vertical line to determine the remaining values. Keep in mind that these values were determined under laboratory conditions, and that differences may be found in field use.

III. Applications

We will be happy to suggest lamps for specific incandescent applications. It is important, however, to test the indicator light in your application to ensure satisfactory performance. Lamp life ratings, while useful as general guides, are often misleading since they are based on static (vibration-free) conditions.





TECHNICAL NOTES

NEON LAMPS

I. General Characteristics

Neon lamps consist of a pair of closely spaced electrodes within a leaded glass envelope which is filled with a gaseous substance. This type of lamp is frequently used for line voltage indication, but is also used as a circuit component in some applications. Neon lamps are inexpensive and rugged; they can withstand physical shock and vibration, as well as power surges. Neons also run cool, and require very low current to operate. Light output is relatively low when compared to incandescents, but is quite sufficient for most indication applications. Most neons have an orange-red glow, but special lamps have been developed in green and blue. These colors are obtained by using special gas mixtures and coatings inside the glass envelope.

At low to moderate voltages, neon lamps do not conduct current. As voltage is increased, the lamp will attain breakdown, sometimes called "ignition voltage" or "firing voltage". At this voltage, the gas within the lamp envelope ionizes and conducts current, which causes the negative electrode (cathode) to glow. When used with alternating current at 60 cycles, the two electrodes glow alternately. This occurs so rapidly that the human eye perceives the two electrodes to be glowing steadily.

After a neon lamp attains breakdown, the voltage drop across the lamp decreases to a "maintaining voltage". "Extinction voltage" is the voltage below which gas ionization (and current flow) cease. Extinction voltage is generally the same as maintaining voltage.

Because neon lamps respond to peak voltages, it is preferable to measure the voltage characteristics using direct current. Alternating current is generally expressed as an RMS value, which is an average, rather than a peak reading. For clean sine wave 60 cycles/second AC, peak voltage is approximately 1.4 times the RMS value. Because AC

power is subjected to variations in the peak voltage, we use regulated DC to accurately measure lamp characteristics, and convert to equivalent AC values when appropriate.

IDI neon lamps assemblies are available for operation at 75VAC and up. For applications where voltage will exceed 250VAC, one or more resistors are built into a lead in order to limit voltage drop within the housing. UL and CSA recognition are for a maximum of 250V within the housing.

All neon lamps require current limiting resistors in series with one lamp lead. Most IDI neon assemblies have this resistor built into the housing. Current is normally limited to approximately 0.7mA or standard brightness lamps and 2mA for high brightness types. Exact resistance value depends on lamp type and service voltage. All IDI catalog model neon indicators incorporate high-brightness type lamps, unless otherwise specified. Refer to graphs below for specific values.

Integral resistors can be omitted where appropriate current-limiting impedance is provided elsewhere in the circuit. Shunt resistors can be used to prevent false indication in the presence of leakage current.

At the recommended current levels, lamp life will average 10,000 hours, which will outlast most devices operated on an intermittent basis, such as household appliances. For applications requiring longer life, higher resistance values can be supplied to provide lamp life of over 25,000 or 50,000 hours, with a slight decrease in light output at each step.

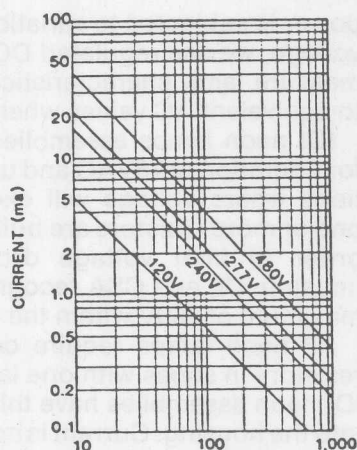
II. Brightness

Light output for standard brightness neons averages .06 lumens per milliampere. High brightness neons average .15 lumens per milliampere. Because they run at higher current levels, high brightness neons are typically 8 times as bright as standard brightness types.



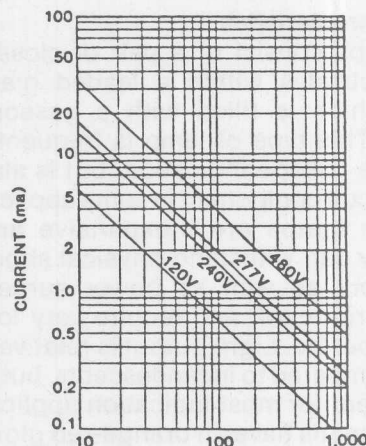
TECHNICAL NOTES

NEON LAMPS



SERIES RESISTANCE (K OHMS)

STANDARD BRIGHTNESS LAMP CURRENT VS. SERIES RESISTANCE (AT 120V, 240V, 277V, AND 480V LINE).



SERIES RESISTANCE (K OHMS)

HIGH BRIGHTNESS LAMP CURRENT VS. SERIES RESISTANCE (AT 120V, 240V, 277V, AND 480V LINE).

In direct current applications, only one electrode glows. Because only one electrode is glowing, light output appears to be less than in an AC application.

The glowing area of the electrode, known as the corona, occurs where the electrons have the path of least resistance. This area can change as a lamp ages, primarily due to gradual wear of the electrode coating. This wear is called sputtering, and results in a gradual darkening of the inside of the lamp envelope.

III. Life Ratings

Standard brightness lamps reach end of life when the visible light output decreases to half of its original design value. The lamp will continue to operate, even after the lamp envelope has been completely covered by sputtered electrode material and light is no longer visible.

High brightness lamps reach end of life when the firing voltage has risen to line voltage. Failure is not sudden or complete; the lamp will begin to flicker as it approaches end of life. This "terminal" flicker is usually accompanied by a slight decrease in light

output. Terminal flicker will begin at approximately 80% of rated life.

Life expectancy of neon lamps is substantially increased as the operating current is decreased. Light output is directly proportional to operating current, so large increases in rated life can be obtained with only modest reductions in light output.

IV. Dark Effect

When some neon lamps are subjected to darkened environments, the breakdown voltage increases and there may be a lag time before ionization occurs. IDI neons contain trace quantities of radioactive elements which minimize this effect. All radiation is safely contained within the leaded glass lamp envelope.

V. Applications

IDI offers a wide variety of neon assemblies, many of which are available from stock. Standard variations enable the user to customize the lamp type, lens shape, color, finish, leads and termination. Because the lamp assemblies tend to outlive the products into which they are built, relampability is not



TECHNICAL NOTES

NEON LAMPS

required. Neon lamp assemblies are available in PC mount and panel mount configurations in a variety of shapes and sizes, from .250" to more than 1" in diameter. Many IDI indicators are designed to reliably snap in to a panel hole with no additional hardware required.

Neon assemblies are also available with special gasketing for high moisture environments and with high temperature housings and leads for operation to 150 degrees C or

higher. IDI also supplies neon flasher assemblies, with a relaxation oscillator circuit, consisting of a diode, a capacitor and two resistors built into a compact, easy to mount assembly.

IDI can also engineer custom neon indicators for more specialized applications. Please call or fax and put over 40 years of IDI neon experience to the test for your application.



TECHNICAL NOTES

OPTOELECTRONICS

I. General Characteristics

Advances in modern material physics produced solid state devices called semiconductors. One group of semiconductors, formulated from materials such as gallium, arsenic and phosphorus, could be made to produce visible light with an application of an electric current across a p-n junction. This phenomenon is known as electroluminescence. Solid state lamps, or light emitting diodes (LEDs), were first made commercially available in 1970.

LEDs are made from gallium based crystals which contain one or more additional materials, such as arsenic and phosphorus. The basic LED crystal is either gallium arsenide (GaAs) or gallium phosphide (GaP). An epitaxial layer is grown on the base crystal into which the light emitting p-n junction is formed. For example, a p-n junction formed in an epitaxial layer of gallium arsenide phosphide (GaAsP) is grown onto GaAs to produce standard red LEDs. P-n junctions in GaAsP epitaxi are grown on GaP to produce high efficiency red and yellow LEDs. GaP epitaxi is grown onto a GaP crystal to produce green LEDs. A recent development has added aluminum to the epitaxial layer to produce aluminum gallium arsenide (ALGaAs), formed into a very high luminous efficiency double heterojunction structure that produces a high intensity red light at very low currents.

LEDs are made by slicing the base GaAs or GaP crystals into thin wafers. An epitaxial layer of either GaAsP or GaP is grown onto the wafers into which the lighting p-n junction is formed. The wafers are then scribed and broken into individual LED dice, or chips, approximately 0.010 inch (0.25mm) square in size. The GaAs or GaP crystal side of the LED chip is the cathode and the epitaxi side is the anode. The LED dice are then attached to a lead frame and packaged into individual lamps.

The cathode side of the LED chip is attached to the cathode lead by silver con-

ductive epoxy and the anode is wire bonded to the anode lead by a 1 mil diameter gold wire. The cathode lead may contain a reflector cup to reflect the emitted light forward. An epoxy dome is cast around the leads to encapsulate the LED chip and form the package of the LED lamp. The epoxy dome package of the lamp may contain a diffusant and be tinted to enhance both viewing angle and on-off contrast.

Tie bars, which hold the anode and cathode leads together during these operations are sheared away, electrically isolating the two leads. The LED lamps are then 100% tested for light output and electrical characteristics.

The narrow band wavelength spectral distribution of an LED is a function of the energy gap within the p-n junction and produces light that appears to be monochromatic to the eye. The color of LEDs is specified in terms of dominant wavelength (a single wavelength of saturated color) from 470 nanometers to 700 nanometers, blue, green, greenish-yellow, yellowish-green, yellowish-orange, orange, reddish-orange and red. LEDs that emit blue light using silicon carbide technology are now available. LEDs cannot produce the broad spectrum of white light, since they emit monochromatic light.

IDI continually investigates the use of new LED technologies to improve our product line. New colors and devices with higher intensities are added as technology improvements become available.

OPERATING CHARACTERISTICS

Light Output Specifications

Light output for LEDs is measured as luminous intensity, luminous flux per unit solid angle, termed a candela (cd). The level of intensity for most LEDs is stated in millicandelas (mcd) and is specified in terms of maximum and typical values. The light output of LEDs does vary with the luminous efficiency of individual wafer lots. The



luminous intensity of some ALGaAs LED lamps exceeds 1000mcd at relatively low currents. LED manufacturers use such terms as bright, super-bright and ultra-bright to describe the light output of their devices. However, there is no industry standard on this subjective terminology.

At IDI, we take special care to assure consistent light output within each lot of product delivered to a customer. Light output of LED devices will increase in the years to come as the luminous efficiency of LED technology improves. Please contact IDI should you need special light output requirements. We can usually meet the requirements of stringent specifications.

Viewing Angle

The luminous intensity of an LED lamp is measured along the direct viewing angle axis (center line of the lamp's dome package). The luminous intensity decreases with off-axis viewing angle. The viewing angle for an LED lamp is specified as that off-axis angle where the luminous intensity is equal to one half the on-axis value. The position of the LED chip within a non-diffused lamp determines the viewing angle. An LED chip positioned near the top of the dome package will produce a wide viewing angle has a low value of on-axis intensity and bottom of the dome package will produce a narrow viewing angle. The wide viewing angle has low value of on-axis intensity and the narrow viewing angle has a high value on-axis of intensity, but both will produce the same amount of total flux at any given current.

Operating Current

LEDs are current operated devices, not voltage operated devices. The drive current through an LED lamp must be controlled. This is typically accomplished by placing a current limiting resistor in series with the

LED lamp. The voltage drop across the LED is a function of the drive current through the device. Bi-color LED lamps typically have two LED chips of different colors wired in a reverse parallel configuration.

Operating from an AC power source is permissible as long as the peak current does not exceed the forward current ratings for the device. It is recommended that a rectifier diode be placed in series with the LED to prevent excessive reverse biasing by the ac drive signal.

Recommended continuous and maximum forward currents are listed for each type of LED device. The luminous intensity, dominant wavelength (color), forward voltage and other electrical parameters are typically specified at a particular current which is less than the maximum rated current.

Pulsing of LEDs and Peak Current

One efficient method of driving LED devices is to pulse them with a high peak current for short durations on a low on-time duty factor. This technique is frequently used to multiplex a number of individual LED lamps. The advantage is high light output at a low time average power consumption. A minimum pulse rate of 100Hz is recommended to eliminate flicker, and 1000Hz is considered optimum for most applications.

Driving LEDs with a Continuous Forward Current

The simplest method of driving an LED is with DC current. Exceeding the maximum current rating is not recommended, as the increased heating produced within the LED chip, due to the excessive power dissipation, will reduce both light output and operating life.



TECHNICAL NOTES

OPTOELECTRONICS

Power Derating

The light output and operating life are a function of the LED junction temperature. Power dissipation is derated as the ambient temperature increases above a certain point, ie: 50°C. Power derating is usually achieved by reducing the forward drive current to a level specified for safe operation at a particular ambient temperature.

Temperature Rating

All IDI LED lamp devices are approved for storage temperature from -55°C to +100°C and operating temperatures from -20°C to +100°C, unless otherwise specified on an individual product basis. Some LED devices have an extended operating range to -40°C. Please consult with an IDI Applications Engineer for assistance in selecting the correct LED device for your specific temperature application.

Operating Life

All IDI LED lamp products are designed for a typical operating life in excess of 100,000 hours in an operating ambient of 25°C. Operating life is a function of temperature, decreasing as the operating temperature

increases.

Solderability

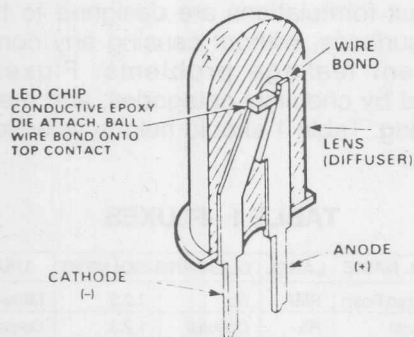
See Technical Notes on soldering for detail information.



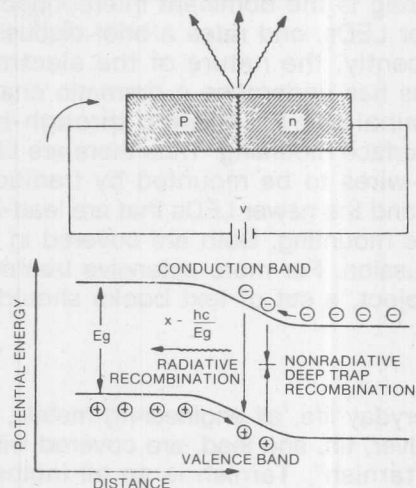
TECHNICAL NOTES

OPTOELECTRONICS

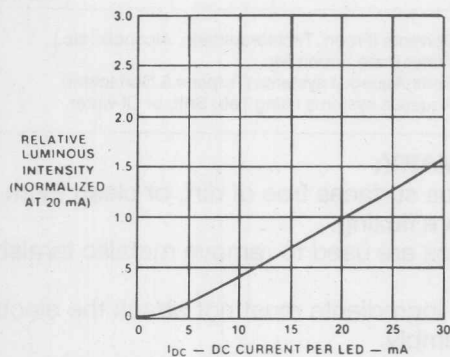
TYPICAL LED LAMP STRUCTURE



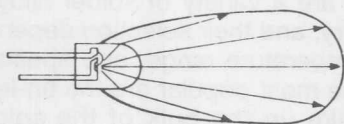
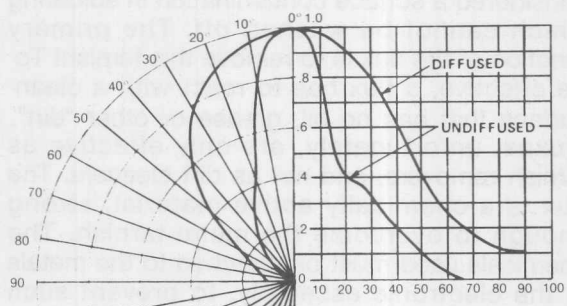
THE PN JUNCTION OF A LIGHT EMITTING DIODE



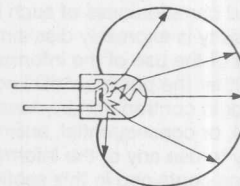
RELATIVE LUMINOUS INTENSITY VS FORWARD CURRENT



DIFFUSED VS CLEAR PLASTIC LENS-LUMINOUS INTENSITY AS MEASURED FROM CENTER AXIS



UNDIFFUSED PLASTIC LAMP:
HIGH VALUE OF ON-AXIS LUMINOUS INTENSITY
WITH A NARROW RADIATION PATTERN



DIFFUSED PLASTIC LAMP:
REDUCED VALUE OF ON-AXIS LUMINOUS INTENSITY
WITH A WIDE RADIATION PATTERN



TECHNICAL NOTES SOLDERING INSTRUCTIONS¹

INTRODUCTION:

Soldering is the dominant interconnection method for LEDs, and rates a brief discussion here. Recently, the nature of the electronic assemblies has undergone a dramatic change from terminal and PC boards, through-hole joints to surface mounting. Thus there are LEDs with lead-wires to be mounted by traditional methods, and the newer LEDs that are lead-less for surface mounting. Both are covered in this brief discussion. For more extensive treatment of the subject, a set of text books should be consulted.²

FLUX:

In everyday life, all engineering metals, like copper, silver, tin, and lead, are covered with a layer of "tarnish". Tarnish is an all inclusive name for metallic reaction products with the air around us. Most tarnishes are oxides, some are sulfides. Tarnish is not electrically conductive, and solder cannot bond to it. Thus tarnish is considered a surface contamination in soldering which cannot be washed off. The primary function of the flux is to remove this tarnish! To be effective, a flux has to react with a clean surface that has no oil, grease or other "dirt". Fluxes, unfortunately, are only effective as tarnish removers, and not as dirt cleaners. The flux is a chemically active material, strong enough to overcome the metal tarnish. The chemicals used must be matched to the metals in the electronic assembly, to prevent such problems as corrosion, or conductive residues

(causing current leakage). Government and industry specifications control the aggressiveness of the flux, to protect the user. Some flux formulations are designed to be left on the surfaces, without causing any corrosive or current leakage problems. Fluxes are classified by chemical categories, and methods of cleaning. Table 1 should help in selection the right flux:

TABLE 1 -FLUXES

CHEMICAL NAME	LABEL	CLEANING-SOLVENT	USAGE
Mildly Activated Rosin	RMA	No	1,2,3. Military, Hi-Rel
Activated Rosin	RA	Optional	1,2,3. Commercial
Super Activated Rosin	SRA	Yes	1,2,3. Commercial
Synthetic Activated R.	SA	Yes	1,3. Commercial
No-Clean Resin	NCF	No	Commercial
Organic Acid	OA	Mandatory	2,4. Commercial
Neutral Organic Acid	OA	Mandatory	2,4. Commercial
Halide Free O.A.	OA-HF	Mandatory	2,4. Commercial, Tinning
Inorganic Acid	IA	Mandatory	4 +1%HCl Tinning, Not in Elect.

1. Solvents (Freon, Trichloroethane, Alcohols, etc.)
2. Water Base Saponifier.
3. Semi-Aqueous systems (Terpene & Surfactant).
4. Aqueous systems using Tab, Soft, or DI water.

SUMMARY:

- Keeps surfaces free of dirt, or clean them before fluxing.
- Fluxes are used to remove metallic tarnish only.
- Flux ingredients must not attack the electronic assembly.
- Select fluxes by established categories, and clean residues where required.

SOLDER:

There are a variety of solder alloys used in the industry, and their selection depends mostly on the temperature range, and special requirements. The most popular are the tin-lead alloys, which make up the bulk of the solder in the electrical-electronic industry. Some higher melting, and some stronger solders contain such additives as silver, and antimony. There are also specialty solders, with mostly lower melting points containing bismuth and indium.

¹ All statements, technical information and recommendations in this section are based on published data, tests, and public information that are believed to be reliable, but the accuracy and completeness of such information is not guaranteed. Liability is expressly disclaimed for loss or injury arising out of the use of the information or recommendations. Neither the publisher (IDI) nor the author shall be liable in tort or in contract for any loss or damage, direct, incidental, or consequential, arising out of the use of or the inability to use any of the information or recommendations contained in this section.

² a. **SOLDERS AND SOLDERING**, Manko Howard, H., McGrawHill Book Co. NY, 3rd Ed 1992, 400 pages.
b. **SOLDERING HANDBOOK for PRINTED CIRCUITS and SURFACE MOUNTING**, Manko Howard H., Van Nostrand Reinhold Co. NY 1986, 450 pages.



TECHNICAL NOTES

SOLDERING INSTRUCTIONS

Solders are classified by the metals in the alloy and the specific composition. Table 2 should help in selecting the right solder:

TABLE 2-SOLDERS

ALLOY COMPOSITION	NAME	TEMPERATURE		METHOD of APPLICATION
		Melting Range	Soldering	
97.5%Pb/1%Sn/1.5Ag	97LTS, Ag1.5	588°F	630-650°F	Dip, Paste Reflow, Hand.
96%Sn/4%Ag	96Ts, Sn96	430°F	500-600°F	Preform/Paste Reflow, Hand.
50%In/50%Pb	50IL	356-408°F	485-520°F	Preform/Paste Reflow.
63%Sn/37%Pb	Eutectic, Sn63	361°F	475-500°F	Wave, Paste Reflow, Hand.
60% Tin/40% Lead	60/40, Sn60	361, 376°F	475-500°F	Wave, Paste Reflow, Hand.
62%Sn/36%Pb/2%Ag	62TLS, Sn62	354°F	475-500°F	Wave, Paste Reflow, Hand.
Sn42%/58%Bi	42TS	280°F	325-400°F	Preform/Paste Reflow.
48%In/52%Sn	48TI	244°F	300-350°F	Preform/Paste Reflow.

Ag - Symbol for Silver

Bi - Symbol for Bismuth

In - Symbol for Indium

Sb - Symbol for Antimony

Pb - Symbol for Lead

Sn - Symbol for Tin.

In the table, the column of names follows the newer and old QQ-S-571 Federal Specifications respectively. The temperature column is divided into two important parts: First, the melting range, which gives the lowest point at which the solder starts melting or freezes (Solidus), and the temperature at which it is all liquid (Liquidus). When only one value is listed, that means that the solder is a eutectic composition with a sharp melting point. Secondly, since the melting temperatures are not sufficient for good soldering, the proper temperature range for wetting is recommended. The last column outlines the more common methods of soldering each alloy.

Relative to LEDs, the key to watch is the soldering temperature. The LED is designed for a maximum temperature of 235 deg. C for a period of 60 seconds. While the metallic leads can withstand most soldering temperatures, the LED junction and plastic lenses are more vulnerable. Remember that heat damage is a function of not only the temperature itself, but also the dwell time at the temperature. If a very

high temperature solder is needed, the LED junction must be protected by soldering techniques or heat sinks. Using very short dwell times may not always be sufficient.

SUMMARY:

- Use 63/37 (eutectic) or 60/40 tin-lead solder for the average assembly.
- Keep the LED junction below 235 deg. C, and for less than 60 seconds. This applies mostly to reflow soldering, where the entire assembly is heated (VPS, IR, etc.).
- The lead wires in conventional soldering can be heated much higher, as long as the junction (inside the plastic lens) is not. Heat sinks (shunts) can be used to reduce junction temperatures; these are clipped onto the lead wires.

WAVE SOLDERING:

The oldest prominent technology in printed circuit assembly is the "Wave Soldering" process. Ideally printed circuits have plated-through holes (PTH), into which component leads are placed and soldered. The soldering process consists of three basic stages; 1. Flux application. 2. Preheating, and 3. Wave Soldering. The work is conveyed through the system by conveyors, or fixtures.

The flux is mostly applied as foam, in which case air is introduced into liquid flux. Foam fluxers are ideal for thin deposits of flux, since approximately 80% of the bubbles is air. A more generous and precise method of flux application is the wave. A mechanism similar to that which is used to pump the liquid solder. The standing flux wave is applied on the bottom of the passing boards. Spray fluxing is also used, but, it requires complex controls to avoid over-spray that fouls up equipment.

A preheater is used to bring the assembly part-way up to soldering temperatures. Preheat to a temperature of 200-230 deg. F measured on the insulation (between conductors) on the top side of the board. Proper preheating shortens the dwell time required in the solder wave, while it reduces board warpage and component heat shock.



TECHNICAL NOTES SOLDERING INSTRUCTIONS

The soldering is done in the wave, where molten solder is pumped up against the passing board. The solder wave has a laminar flow in the opposite direction of the conveyor. This serves to drain excess solder off the board, and avoid icicles and bridging. Only a limited number of alloys are used with the wave, see Table 2 above. A well adjusted wave soldering operation can have as few as 1 rejected joint per 100,000 (10 ppm).

Wave soldering has also been adapted to surface mount technology. Here the devices (SMDs) are glued to the underside of the board, and passed through the wave totally submerged in the molten solder. This process adaptation obviously does not apply to surface mounted LEDs.³

Some solder waves use oil to reduce the amount of dross (solder oxides, etc.) formed, and improve the yields. The use of oil mandates cleaning after soldering, which is not always desirable or economical. Another method uses a nitrogen blanket over the wave, to minimize dross. The inert nitrogen also improves wetting, lowers the soldering temperature, and simplifies flux removal. For more details see the heat profile⁴.

SUMMARY:

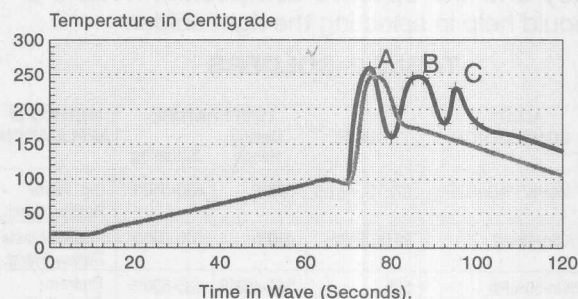
For best results with LEDs, follow these precautions:

- Take great care in cutting LED lead wires, not to stress the junction, which would cause device failure.
- Make sure the LED on the top side of the board does not exceed the 235 deg. C - 60 second limit.
- Use a flux cleaner combination that does not attack the epoxy in the laminate (PC board) or LED lens.⁴
- Do not use the wave for surface mount LED soldering.

REFLOW SOLDERING:

As the surface mount technology grows, much of the soldering falls into the category of

TYPICAL WAVE SOLDER PROFILE



LED Location
— Through hole (top) + Surface Mount (bottom)

The two heat profiles represent different soldering conditions, but are identical through the fluxing and preheating states. Note that on most equipment there is a slight cooling between the preheater and the wave itself. The single peak curve represents the normal through hole soldering line, with the solder at 250 deg. C (485 deg. F), for 1-2 second contact time.

Wave soldering of the LED mounted on the bottom of the board is not recommended, however the soldering conditions for mixed technology boards (through hole and surface mount together) are also given. The three peaks on the second curve represent the ultimate SMT line. Where A is the multi-directional "Chip Wave" at 260 deg. C (500 deg. F) and 1/2 - 1 sec. dwell; B is the laminar wave at 250 deg. C (485 deg. F) and 1-3 sec. dwell; and C is the hot air knife, with an effectual board surface temperature of 230 deg. C (445 deg. F) for 1-3 seconds. Not all SMT waves have all three peaks.

reflow. The components are placed on-top of the tacky paste, which retains them in their location. The heat (reflow) is applied in one of many ways, which include Vapor-Phase, IR, and Convection ovens.⁵

Solder "paste" or "cream" is a homogeneous mixture of powdered solder and flux. The heavy solder powder is suspended in a very viscous paste flux, which gives it its unique properties.⁶ Paste can be applied to the work by screen printing, stenciling, or extrusion. The

⁴ Methylene chloride is the most aggressive solvent for epoxy resins, and tends to dissolve or strip it.

⁵ Section 5-11 in Reference 1b.

⁶ Chapter 10, of "SOLDERS AND SOLDERING", Manko Howard H., McGraw-Hill Book Co. NY, 3rd Ed - to be published Jan. 1992.

³ Chapter 4. in Reference 2.b.



paste is tacky, so it can hold the components during the process alleviating a need for fixtures or glue.

The heating methods mostly used are:

1. **In Vapor Phase Soldering (VPS):** In this process, a temperature stable liquid is boiled in a sump. The heavy vapor is contained in the working zone of the equipment, and an efficient cooling coil prevents it from escaping. The work is lowered into the vapor, where the heat is transferred from the condensing vapor to the work. The heating is based on the heat of condensation (enthalpy) released, and the convection of the vapor. The process is controlled by the dwell time in the vapor zone. A variety of liquids are available for high and lower temperature melting solders.
2. **IR and Convection Ovens:** In this process the work is passed through a chamber which is heated directly by infra-red emitters (IR oven), or indirectly by hot air or gas (Convection oven). Most ovens have specific heating zones, which allows for adjusting the rate of temperature rise to obtain a suitable profile. The process is controlled by the individual zone temperatures, and the conveyor speed. These units can be used with air, inert-, or reducing-atmospheres. For further details, see the heat profile.

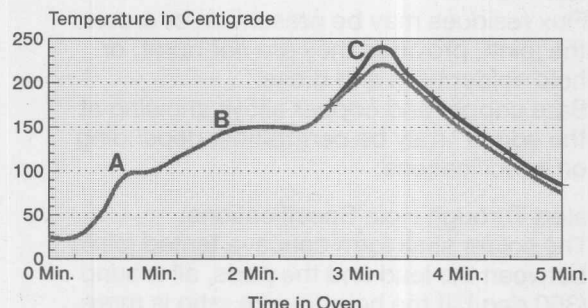
SUMMARY:

For best result when reflowing LEDs, remember:

- Place LED on paste without undue pressure, or the paste will be squeezed sideways, which can cause solder balls and bridging.
- Reflow within the temperature limits of the LED.
- Clean only in solvents that do not attack epoxies.⁷

⁷ See footnote 6.

TYPICAL REFLOW SOLDER PROFILE (Oven)



In a typical oven the first hesitations in the heat profile (A) corresponds to the gas seal (positive pressure at the entrance gate). The second hesitation (B) is a deliberate dwell in the paste drying zone, while the third (C) is a temperature soak at around the T_g of the board. The solder temperature differs for the atmosphere in which the soldering takes place. In nitrogen the reflow is at 220 deg. C (430 deg. F). The dwell time in the average laminar wave is 1/2 - 2 seconds. Caution - the exposure above the melting temperature of 183 deg. C (361 deg. F) should not exceed the 60 second limit.

QUALITY & INSPECTION:

Visual inspection is still the most popular, and acceptable method of solder joint quality examination. To succeed it requires some simple guidelines and workmanship standards. There is a difference in the joint configuration of leaded LEDs for plated through hole mounting, and LEDs for surface mounting. We will treat their workmanship standards separately.

Quality Guidelines: A good solder joint should:

- Show good wetting on the entire joint area, with shallow concave contact angles.
- All contours must be showing. Remember that excess solder masks the true wetting conditions.



TECHNICAL NOTES

SOLDERING INSTRUCTIONS

- The solder must be smooth, shiny⁸, and uniform. No flags, pimples, or scratches are allowed.
- Flux residues may be present on or around the joint⁹, provided they are not burnt, or hold solder balls and dross.
- Bare copper and copper alloys showing at the edges¹⁰ may be permissible depending on specifications.

Plated Through Hole Specifications:

- The solder shall form concave tented joints between the lead and the pads, all around (360 deg.). If the hole-to-wire ratio is more than .022" (hole diameter minus O.D. of wire), then 270 deg. around is acceptable.
- The solder fillet on the top side of the board may sag back up to 25% of the board height, provided that good wetting to the pad is evident.
- No defects like blow holes, bridges, and icicles are permitted. Shallow pin holes, resulting from freezing patterns are permitted.

Surface Mount Specifications:

- The solder shall form concave solder joints between the SMD termination and the pads.
- The height of the solder must conform to specifications. The ideal joint would be:
 - On chips - the meniscus should reach between 1/3 up and the top of the chip.
 - On Gull Wing Leads - the meniscus should be between the end of the heel, and no higher than half way up to the lead knee bend. The fillet should also reach the toe.
 - On Jay Leads - The fillet should be between half way up the heel (mid-point) and the top of the heel. The same applies to the toe bend.
 - For LEDs - With clip terminals - The outside fillet should run at least 75% of the

clip length, and rise a minimum of 1/4 the clip height showing good wetting. With bend lead terminations. The outside fillet should cover at least 90% of the wire length, with the lead well wetted and barely visible. A good solder meniscus should be visible at either the heel or toe, preferable in both.

SUMMARY:

- Inspect solder joints visually.
- Use the naked eye, or up to 5x magnification.
- Use a microscope only for failure analysis, or borderline inspection in the lab.

REPAIR & TOUCH-UP:

The ability to unsolder and resolder is one of the advantages of this bonding method. It enables us to remove and replace faulty components. In addition, it allows for touch up of solder fillets that do not meet quality standards.

The process of component replacement in general can be outlined as follows:

1. Apply liquid flux to the joint, to expedite low temperature soldering.
2. Apply heat to the connection, to remelt the solder.
3. Remove the solder by vacuum or a wick.
4. Remove the part to be replaced.
5. Clean and cool the local area of the joint (optional - depending on flux used).
6. Replace the component, and hold or fixture in place.
7. Solder (resolder) join in conventional way.
8. Clean and cool the joint area - Optional depending on flux used.

The heat in step 2 and 7 can be applied by many means. The soldering iron and hot air are the most common tools. Special shaped iron tips, and heated tweezers are also available. The hot air can be used in a wide stream or through focused orifices. In all cases, the dwell time above the melting point of solder should be kept below 5 seconds in each step.

⁸ True only if the parent solder is shiny. Eutectic 63/67, 60/40, 6236/2Ag, are examples of shiny solder. 97.5%/1Sn/1.5Ag, and other high lead alloys are inherently dull.

⁹ Where specifications do not require flux removal.

¹⁰ On the sides of printed circuit board traces and pads, as well as cut lead ends and rectangular contact edges.



TECHNICAL NOTES

SOLDERING INSTRUCTIONS

The process of touch-up must be further divided into several distinct categories:

A. Removal of excess solder (bridging, icicling, and the like). This follows steps 1, 2, 3 and 8, of the replacement process above.

B. Reshaping existing solder fillets. Use steps 1, 2 and 7, of the replacement sequence.

The process of adding solder to insufficient joints, is self explanatory. It involves steps 1, 2, 7 and 8.

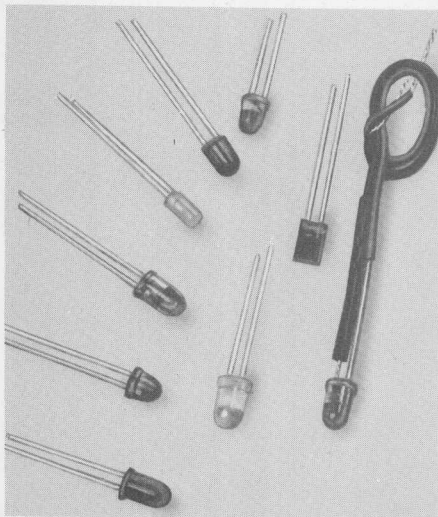
Technical note on soldering was authored by Howard Manko.



QUALITY PRODUCTS
COMMITTED TO EXCELLENCE

Solid State LED Lamps

High Brightness Blue LEDs... "Sun Brite" Red LEDs... Tri-color and Bi-color LEDs... Low Current LEDs... Integral Resistor models... the list goes on. IDI LEDs are quality manufactured solid-state devices available in a broad range of colors, shapes and performance specifications to suit nearly every application. These LEDs handle shock, vibration and a wide temperature range, with life generally rated over 100,000 hours.

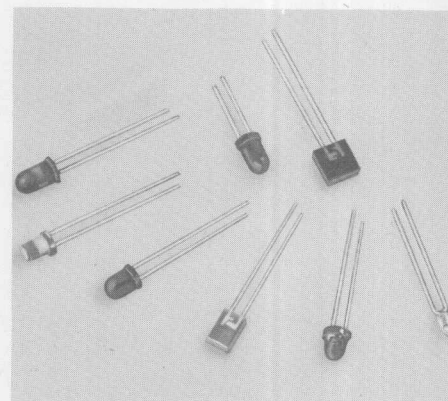


IDI "Brite" and "High-Brite" LEDs provide uniform, wide-angle light output suitable for indoor applications where economy is as important as maximum brightness. With sizes ranging from T-3/4 subminiature radial leaded, to 2.4 x 7 mm rectangular, many incorporate built-in resistors for 5V and 12V operation. "LC" LEDs are designed for TTL compatibility, running at 2mA, which allows maximum light output where current is at a premium, such as in battery-operated devices.

"Super-Brite" "Ultra-Brite" and "Sun-Brite" LEDs are ideal for light-piping and focused illuminations, providing

higher light output over narrower angles. Our tri-color and bi-color LEDs permit multi-function indication in a single lamp, with either 3-leaded common cathode or 2-leaded "reverse parallel" construction.

Most IDI LED lamps are available in a variety of off-the-shelf or Standard Variation packages for printed circuit board or panel-mounting. Where loose lamps are preferred, a variety of attractive, innovative lenses and mountings supply the designer with a myriad of options for indication solutions.



Service

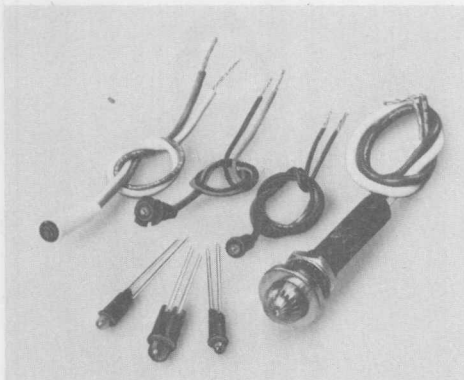
In-stock availability for catalog models is assured by our worldwide distribution network, as well as extensive production planning and factory inventory. Top-notch tech support and quick turnaround on custom and standard variation orders are routine.

Industrial Devices, Inc., 260 Railroad Ave., Hackensack, NJ 07601 • (201)489-8989 • FAX: (201) 489-6911



QUALITY PRODUCTS
COMMITTED TO EXCELLENCE

Panel Mount LED Indicators



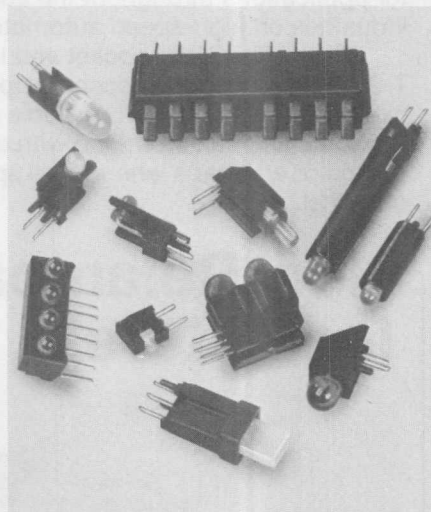
Designed for quick, snap-in panel-mounting, these attractive, off-the-shelf indicators incorporate "Super-Brite" and "Ultra-Brite" LEDs in a variety of colors and sizes to suit your latest design. All IDI panel-mount assemblies feature wide-angle visibility, while many have polycarbonate lenses for added static discharge protection. A wide variety of high-output LED assemblies with built-in resistors, designed to operate directly off of 5V and 12V power supplies without separate external resistors are generally available from stock. For applications where multi-function indication is required, our bi-color and tri-color assemblies can be illuminated as red, green or amber in a single easy-to-mount package.

PCB Mount LED Indicators

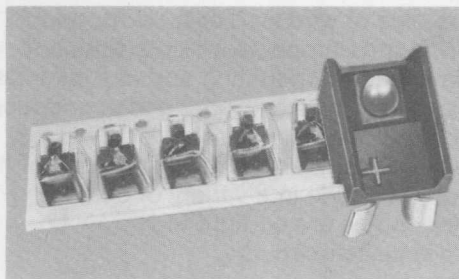
These performance-proven assemblies save time and money and solve many LED packaging problems. They offer quick, easy installation, uniform spacing, secure mounting. Manufactured in a wide variety of single and multiple-LED styles, they are available in a range of colors and brightness levels for supply voltages up to 15 volts.

All IDI PCB Mount LEDs feature built-in standoffs to prevent flux entrapment and facilitate post-solder cleaning. Many include press-in pins or our unique "harpoon-locks" to assure consistent positioning throughout the assembly process.

IDI LED assemblies are designed to meet the most rigorous process, environmental and reliability requirements. All are light checked prior to shipment. They are packaged to assure that lead alignment is preserved through installation on the board, in anti-static packaging where needed.



Surface Mount LEDs



IDI's right-angle SMT assemblies position the LED for easy visibility and are especially useful where boards are mounted in parallel, close to one another. Available in red, amber, green and yellow. Low-current units for 2mA operation and resistor-included models for 5 and 12 volt are readily available. All withstand IR and vapor-phase reflow, and are compatible with standard cleaning agents. IDI surface mount LEDs are supplied on ESD tape to EIA standards.



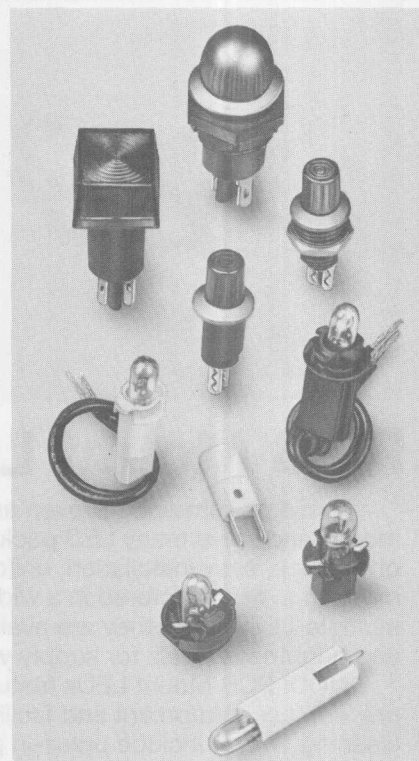
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Relampable Indicators

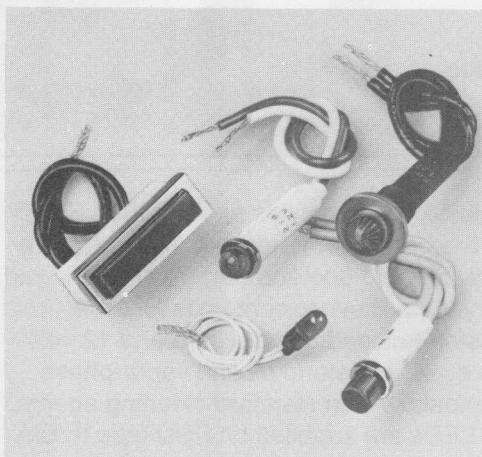
"Tiny-Mite" and "Mini-Slide" families of IDI relampable socket and lamp assemblies are designed to easily accommodate a wide assortment of high output Incandescent lamps. They hold securely, make reliable contact and will not loosen with vibration or shock. Easy lamp insertion and removal is assured when required. The ideal choice for use where maximum brightness is paramount, IDI relampable sockets are available for voltages ranging from 2.5V to 120V.

The "Tiny-Mite" series is engineered for the subminiature T-1 3/4 wedge-base lamp. Available in wire lead tab-mount or twist-mount, quick-connect terminal, solder lug or PCB mount configurations, these sockets use economical and widely available all-glass wedge-base lamps. IDI produces millions of these assemblies annually for applications throughout the automotive and electronic industries on high-speed automated equipment.

IDI's "Mini-Slide" socket and lamp assemblies utilize T-2 slide-base Incandescent lamps. They incorporate nickel-plated contacts for reliable connections, are easy to install, and can be mated with an assortment of lenses and color end-caps where a full spectrum of colors is essential.



Non-Relampable Indicators



IDI's general purpose indicators (Neon, Incandescent or LED) offer numerous options for the design engineer. All are UL and CSA approved, and are designed for high reliability, with lamps hard-wired into a tamper-resistant insulated housing. Neon and LED models incorporate appropriate current-limiting resistors. Most LED assemblies also feature protective rectifier diodes for DC or AC operation.

Available in a choice of wire lead or quick-connect terminal models, IDI non-relampable indicators feature snap-in or push-on speednut mounting and use minimal space behind the panel. These compact and economical lights often outlive the products in which they are used. Each series is designed to enhance the appearance of the end product, and are available in a variety of colors, shapes and finishes. Some are oil-tight to NEMA 12, others feature built-in flasher circuitry.

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QUALITY PRODUCTS COMMITTED TO EXCELLENCE

Non-Relampable Indicators (continued)



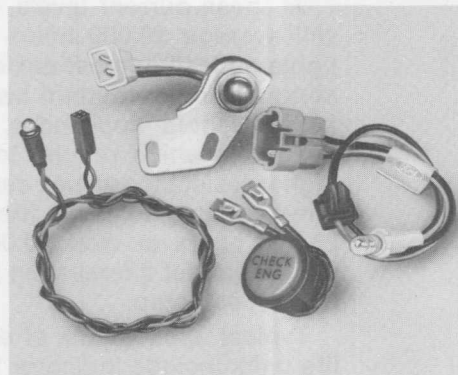
For line-voltage applications, IDI Neon assemblies are preferred. These rugged, dependable lamps draw very little current, generate little heat, and typically function in excess of 25,000 hours.

For low voltage applications, IDI solid-state LED assemblies offer long-rated life of over 100,000 hours. When maximum brightness at low voltage is required, IDI non-relampable Incandescent assemblies are ideal.

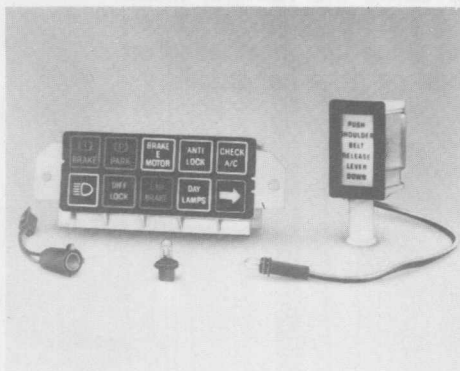
Standard Variations

Add a terminal and connector combination...Make one lead six inches and the other 24"...Match the color of the switch...Make it withstand 150°C...Imprint a logo....

IDI thrives on "Standard Variation" requests. As a leading indicator light manufacturer for over 45 years, IDI can readily modify any catalog item to suit your requirements, usually without tooling or set-up charges. Short lead times and a high degree of flexibility make it easy for you to specify exactly the right configuration, eliminating production line headaches.



Custom Products



IDI has designed and produced thousands of custom products for specific customer needs by working closely to develop innovative design solutions. Our engineering and manufacturing staff is well-trained and well-equipped to develop new designs into defect-free production.

State-of-the-art 3-D CAD modeling, complete in-house toolmaking, injection molding, marking and screened graphics capabilities provide quick responsiveness to your needs. Use of proactive quality assurance tools, such as FMEA's Taguchi methods, SPC and Poka-Yoke assure that potential problems are identified and eliminated.



LAMPS USED IN IDI INDICATOR LIGHT ASSEMBLIES

SOLID-STATE LAMP NOTES: Rectifier diode may also be supplied to protect against accidental damage due to reverse polarity dc as well as for use on ac.

Because light-emitting diodes normally outlast the products on which they are used, they may be wired permanently into your circuitry.

NEON LAMP NOTES: Resistors are usually selected to limit current to 2 mA for high brightness lamps and .5 mA for standard brightness types. Exact resistance value will depend on service voltage and lamp.

At these current levels, lamp life will average 10,000 hours with the lights outlasting most devices operating on an intermittent basis, such as household appliances. For applications which require longer life higher resistance values can be supplied to provide lamp life of over 25,000 hours or over 50,000 hours with a modest decrease in light output at each step.

Typical applications of extended-life units include indicator lights for emergency lights, alarm systems, and industrial equipment. In these applications where the lamp will be lit for prolonged periods, or even full time, long-life units provide reliable operation for many years.

INCANDESCENT LAMP NOTES: All incandescent lamps contain a filament which is susceptible to damage from shock or vibration or voltage transients. In general the higher the voltage — or the lower the current at a given voltage — the more fragile the filament.

Accordingly, when shock or vibration are present and an incandescent lamp must be used, choose the lowest supply voltage available. Try to isolate the lamps as far as possible from the vibration source — cushioning will help.




Incandescent lamps should not be connected across inductive loads, such as the coil of a relay or solenoid, without some sort of filter to prevent voltage transients from damaging the filament. It is also helpful in all cases to derate the lamp — use it below rated voltage — which will reduce light output but greatly extend lamp life. A 28-volt lamp, for example, has over five times rated life when operated at 24 volts.

We will be happy to suggest lamps for specific incandescent applications. However, it is important to test the indicator light in your application to ensure satisfactory performance. Lamp life ratings, while useful as a general guide, are often misleading since they are based on static (vibration-free) conditions.



LAMPS USED IN IDI INDICATOR LIGHT ASSEMBLIES

2

	SOLID STATE	GLOW	INCANDESCENT
	 (LED)	 (NEON)	 (FILAMENT)
Total light output	Low to moderate* red, amber, green, yellow, blue	Relatively low. Amber-red color, green, blue also available.	Low to high, de- pending on lamp. Generally white light.
Operating voltage	1.7V and up.	65Vac, 90Vdc for standard brightness types; 95Vac, 135Vdc and up for high-brightness.	1V to 120V (Operation generally not recommended above 28V for non- relampable assemblies).
Operating current	.001 to .100A. Nor- mal operation at .015 to .025A.	.0003 to .005A, depending on lamp.	From .015A up, de- pending on lamp.
Ballast required (current-limiting resistor)	Yes. Rectifier diode also required for ac service.	Yes. Normally built into housing or in- stalled in one lead for non-relampable assemblies.	No. (Voltage-drop- ping resistor some- times used).
Life	100,000 + hours	Minimum 5000 hours. up to 50,000 + depending on current.	Depends on lamp life rating and con- ditions of use.
Resistance to vibra- tion, shock, voltage transients	Very high.	Very high.	Low to moderate, depending on lamp, type of shock.
Cost	Low to moderate,	Low.	Low to high, de- pending on lamp.
Typical applications	Battery operated devices with inte- grated circuits, low current applica- tions.	Line-voltage oper- ated appliances, instruments.	Very broad range.

*Recent improvements in material technology has increased brightness levels significantly.



ENGINEER'S KIT MODEL EK-3

MORE BRIGHT IDEAS FROM IDI

This handy compartmented plastic box filled with over \$100.00 worth of IDI indicator lights is yours for only \$25.00. Great for building prototypes and to stimulate ideas for future projects—or to solve problems in repair and maintenance.

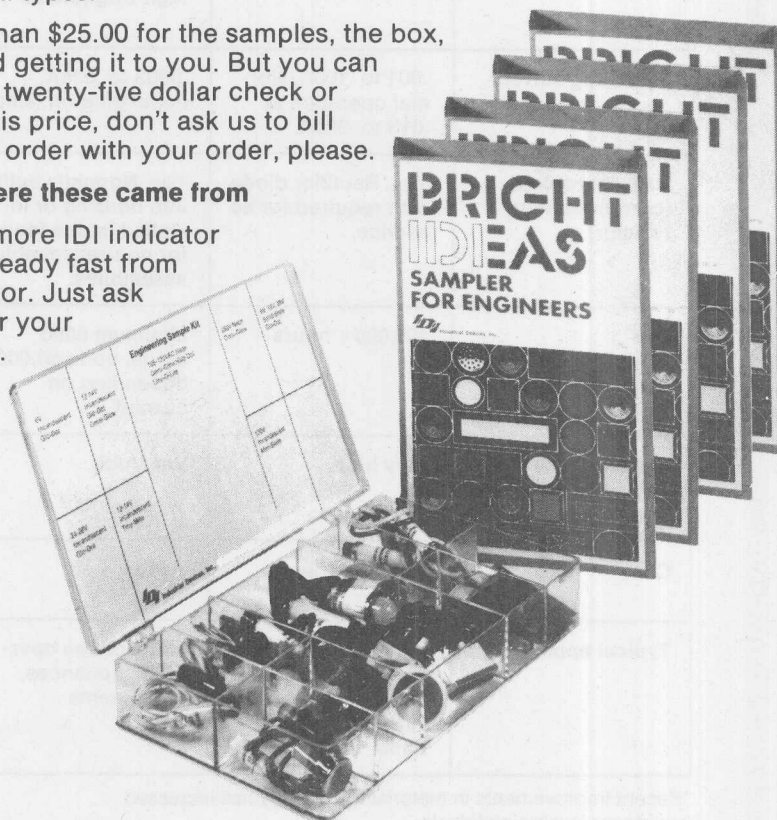
You get 45 LEDs and LED assemblies. Twenty-one styles, three colors. Plain LEDs including SUPER-BRITE and EXTRA SUPER-BRITE, panel-mounted LEDs, P.C. board-mounted LEDs, complete assemblies including current-limiting resistors and rectifier diodes.

In addition 9 sockets and relampable incandescent lamp assemblies, and 21 incandescent and neon non-relampable assemblies. In all over a dozen styles, seven colors, six voltages, and five mounting hole sizes. Wire leads and terminal types.

The kit costs more than \$25.00 for the samples, the box, putting it together, and getting it to you. But you can have Model EK-3 for a twenty-five dollar check or money order. But at this price, don't ask us to bill you—check or money order with your order, please.

We have lots more where these came from

These, and hundreds more IDI indicator lights, are in stock or ready fast from your local IDI distributor. Just ask our salesman. Send for your IDI Engineer's Kit now. Lots of bright ideas in a small package.





SOLID STATE LED LAMPS

A wide variety of top-quality LEDs in a variety of sizes and packages styles.

All IDI LEDs provide bright, unmistakable indication. SUPER-BRITE LEDs are GaAsP on GaP for red and yellow, ULTRA BRITE LEDs utilize ALGaAs as construction for red, GaAsP on GaP for amber, and high-efficiency for GaP for yellow and green.

"LC" LEDs are high efficiency types available in red, green and yellow, require only 2 mA, ideal for battery-operated devices and limited-current power supplies.

"—5V" LEDs have a current-limiting resistor on the chip, are TTL compatible—require no external current-limiting resistors.

"I"LED's incorporate two separate chips connected in parallel but with opposite polarity. Red/green (1/5) allows one LED to signal two different conditions (plus off.) Red/red (1/1), green/green (5/5) and yellow/yellow (7/7) bi-polar LEDs are ideal for use on AC or on DC where polarity cannot readily be identified.

IDI LEDs are available as components, and also in a variety of panel-mounted and printed circuit-board mounted assemblies.

BRIGHTNESS DESIGNATIONS USED BY IDI

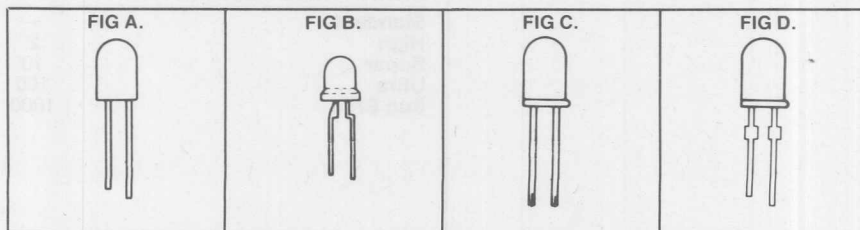
BRIGHTNESS DESIGNATION	Brightness in mcd	
	Lower Limit	Upper Limit
Standard	—	under 2
High	2	under 10
Super	10	under 100
Ultra	100	under 1000
Sun Brite	1000	—



LED CHART


MODEL NO.	OUTPUT COLOR*	DIFFUSED-NON DIFFUSED*	PACKAGE COLOR*	VIEWING ANGLE	MIN LUM INTENSITY AT RATED CURRENT	TYP LUM INTENSITY AT RATED CURRENT	RATED CURRENT	FORWARD VOLTAGE-TYP.	FORWARD VOLTAGE-MAX.	FIGURE NO.	PAGE NUMBER
				deg	mcd	mcd	mA	V	V		
4300E1NF	R	D	R	70	0.5	3.0	20.0	1.7	2.2	A	3-4
4300F1LC	R	D	R	50	1.0	1.8	2.0	1.8	2.2	B	3-16
4300F5LC	G	D	G	50	1.0	1.6	2.0	1.8	2.2	B	3-16
4300F7LC	Y	D	Y	50	1.0	1.8	2.0	1.9	2.7	B	3-16
4300H1LC	R	D	R	50	1.2	2.0	2.0	1.8	2.2	C	3-5
4300H5LC	G	D	G	50	1.2	2.5	2.0	1.8	2.2	C	3-5
4300H7LC	Y	D	Y	50	1.2	2.0	2.0	1.9	2.7	C	3-5
4300T1LC	R	D	R	90	0.4	0.8	2.0	1.8	2.2	F	3-22
4300T5LC	G	D	G	90	0.4	1.2	2.0	1.8	2.2	F	3-22
4300T7LC	Y	D	Y	90	0.4	0.6	2.0	1.9	2.7	F	3-22
4301F1/5	R/G	D	CL	100	2.5	10.0	20.0	2.1	3.0	B	3-17
4301H1/1	R/R	D	R	100	3.2	20	20	2.0	2.5	C	3-7
4301H1/5	R/G	D	CL	50	0.6	6.0	10.0	2.2	2.8	C	3-6
4301H5/5	G/G	D	G	100	3.2	20	20	2.2	2.5	C	3-7
4301H7/7	Y/Y	D	Y	100	3.2	20	20	2.1	2.5	C	3-7
4302F1-5V	R	D	R	60	2.0	8.0	13.0	5.0	7.5	B	3-18
4302F1-12V	R	D	R	60	2.0	8.0	13.0	12.0	15.0	B	3-18
4302F3-5V	A	D	A	60	2.0	8.0	10.0	5.0	7.5	B	3-18
4302F3-12V	A	D	A	60	2.0	8.0	10.0	12.0	15.0	B	3-18
4302F5-5V	G	D	G	60	2.0	8.0	12.0	5.0	7.5	B	3-18
4302F5-12V	G	D	G	60	2.0	8.0	12.0	12.0	15.0	B	3-18
4302H1-5V	R	D	R	65	1.5	6.0	10.0	5.0	7.5	C	3-8
4302H1-12V	R	D	R	60	1.5	4.0	13.0	12.0	15.0	C	3-8
4302H3-5V	A	D	A	75	1.5	7.0	10.0	5.0	7.5	C	3-8
4302H3-12V	A	D	A	60	1.5	4.0	13.0	12.0	15.0	C	3-8
4302H5-5V	G	D	G	75	1.5	10.0	12.0	5.0	7.5	C	3-8
4302H5-12V	G	D	G	60	1.5	4.0	13.0	12.0	15.0	C	3-8
4302T1-5V	R	D	R	90	1.0	5.0	9.6	5.0	6.0	F	3-23
4302T1-5VLC	R	D	R	90	0.8	2.0	3.5	5.0	6.0	F	3-24
4302T3-5V	A	D	A	90	1.4	5.0	10.0	5.0	6.0	F	3-23
4302T3-5VLC	A	D	A	90	0.9	4.0	3.5	5.0	6.0	F	3-24
4302T5-5V	G	D	G	90	1.6	5.0	10.0	5.0	6.0	F	3-23
4302T5-5VLC	G	D	G	90	0.9	2.0	3.5	5.0	6.0	F	3-24
4303F1	R	D	R	90	1.5	6.0	10.0	2.0	3.0	B	3-19
4303F3	A	D	A	60	3.0	4.0	10.0	2.2	3.0	B	3-19
4303F5	G	D	G	90	2.0	12.0	20.0	2.2	3.0	B	3-19
4303F6	B	D	CL	48	0.9	1.3	30.0	3.2	3.5	G	3-20
4303F7	Y	D	Y	90	1.5	20.0	20.0	2.1	3.0	B	3-19
4304H1	R	D	R	65	3.0	30.0	20.0	2.0	3.0	G	3-9

*LED COLOR CODE A-AMBER B-BLUE CL-CLEAR G-GREEN Y-YELLOW D-DIFFUSED N-NON DIFFUSED

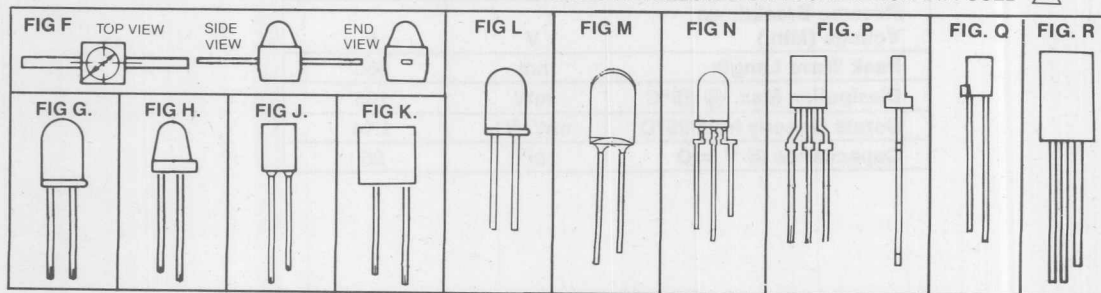




LED CHART

MODEL NO.	OUTPUT COLOR*	DIFFUSED—NON DIFFUSED*	PACKAGE COLOR*	VIEWING ANGLE	MIN LUM INTENSITY AT RATED CURRENT	TYP LUM INTENSITY AT RATED CURRENT	RATED CURRENT	FORWARD VOLTAGE—TYP.	FORWARD VOLTAGE—MAX.	FIGURE NO. 	PAGE NUMBER
4304H3	A	D	A	60	4.0	20.0	20	2.2	3.0	G	3-9
4304H5	G	D	G	75	3.0	30.0	20	2.2	3.0	G	3-9
4304H6	B	D	CL	40	2.0	3.0	45	3.4	3.9	G	3-10
4304H7	Y	D	Y	65	2.5	25.0	20	2.1	3.0	G	3-9
4304S1	R	D	R	50	2.0	4.0	10	2.0	3.0	H	3-11
4304S5	G	D	G	50	0.5	3.0	10	2.2	3.0	H	3-11
4304S7	Y	D	Y	50	1.5	9.0	10	2.1	3.0	H	3-11
4305H1	R	N	R	28	17.0	120.0	20	2.0	3.0	C	3-12
4305H5	G	N	G	35	20.0	120.0	20	2.1	2.5	C	3-12
4305H7	Y	N	Y	28	17.0	120.0	20	2.1	3.0	C	3-12
4306D11	R	D	R	100	1.0	4.0	20	2.0	3.0	J	3-26
4306D15	G	D	G	100	1.0	4.0	20	2.2	3.0	J	3-26
4306D17	Y	D	Y	100	1.0	4.0	20	2.1	3.0	J	3-26
4306D23	A	D	A	100	1.0	4.0	20	2.0	3.0	J	3-26
4306R1	R	D	R	100	2.5	5.0	25	2.1	3.0	K	3-27
4306R3	A	D	A	100	1.5	3.5	20	2.2	3.0	K	3-27
4306R5	G	D	G	100	1.5	7.0	20	2.3	3.0	K	3-27
4306R7	Y	D	Y	100	3.0	5.0	20	2.2	3.0	K	3-27
4307T1	R	D	R	80	1.0	5.0	10	2.2	3.0	F	3-25
4307T3	A	D	A	90	1.0	3.0	10	2.2	3.0	F	3-25
4307T5	G	D	G	70	1.0	4.0	10	2.3	3.0	F	3-25
4307T7	Y	D	Y	90	1.0	3.8	10	2.2	3.0	F	3-25
4308H1	R	N	CL	24	100.0	240.0	20	1.8	2.2	F	3-13
4308H5	G	N	CL	24	80.0	170.0	20	2.3	3.0	C	3-13
4308H7	Y	N	CL	24	80.0	190.0	20	2.2	3.0	C	3-13
4309K1	R	D	R	135	6.7	10.0	20	2.2	3.0	Q	3-30
4309K5	G	D	G	135	5.7	7.0	20	2.3	3.0	Q	3-30
4309K7	Y	D	Y	135	5.4	7.0	20	2.2	3.0	Q	3-30
4310H1	R	N	CL	12	700.0	1000.0	20	2.0	3.0	D	3-14
4310H21	R	N	CL	24	290	700	20	1.9	2.4	C	3-14
4318F1	R	N	CL	45	35.0	65.0	20	1.8	2.2	B	3-21
4318F5	G	N	CL	45	24.0	80.0	20	2.3	3.0	B	3-21
4318F7	Y	N	CL	45	24.0	65.0	20	2.2	3.0	B	3-21
4366C1	R	D	R	100	12	24	20	1.7	2.0	M	3-31
4366C3	A	D	A	100	12	24	20	2.2	2.8	M	3-31
4366C5	G	D	G	100	12	24	20	2.1	2.8	M	3-31
4366C7	Y	D	Y	100	12	24	20	2.2	2.8	M	3-31
4361H1/5	R/G	D	CL	80	1.5	7.0	15	2.1	2.8	N	3-15
4361H3/5	A/G	D	CL	80	1.5	5.0	15	2.1	2.8	N	3-15
4362D1/5	R/G	D	CL	60	0.25	0.6	15	2.2	2.8	P	3-28
4363D1/5	R/G	D	CL	100	2.1	—	20	2.1	2.5	R	3-29

*LED COLOR CODE A-AMBER B-BLUE CL-CLEAR G-GREEN Y-YELLOW D-DIFFUSED N-NON DIFFUSED 



Industrial Devices, Inc., 260 Railroad Ave., Hackensack, NJ 07601 • (201)489-8989 • FAX: (201) 489-6911



SOLID STATE LED LAMPS

BRITE FLANGELESS T-1^{3/4} (5mm)

RED

SERIES 4300E

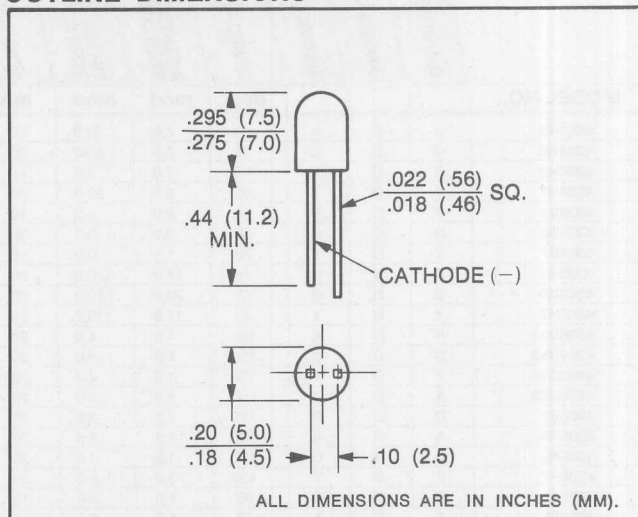
FEATURES

T-1^{3/4} BRITE LEDs

- Good light output
- Wide viewing angle
- Economical
- Flangeless



OUTLINE DIMENSIONS



	UNITS	4300E1NF
Output Color		Red
Diffused — Non Diffused		Diffused
Package Color		Red
Viewing Angle	deg.	70
Min. Lum. Intensity @ Rated Current	mcd	.5
Typ. Lum. Intensity @ Rated Current	mcd	3
Rated Current	mA	20
Forward Voltage — Typ.	V	1.7
Forward Voltage — Max.	V	2.2
Continuous Forward Current, Max.	mA	100
Peak Forward Current @ 1 ms — 300 PPS	A	1.0
Reverse Breakdown Voltage (Min.)	V	5
Peak Wave Length	nm	660
Dissipation Max. @ 25°C	mW	105
Derate Linearly from 25°C	mW/°C	1.14
Capacitance @ V = 0	pF	25



SOLID STATE LED LAMPS

LOW CURRENT T-1 $\frac{3}{4}$ (5mm)

RED
GREEN
YELLOW

SERIES 4300HLC

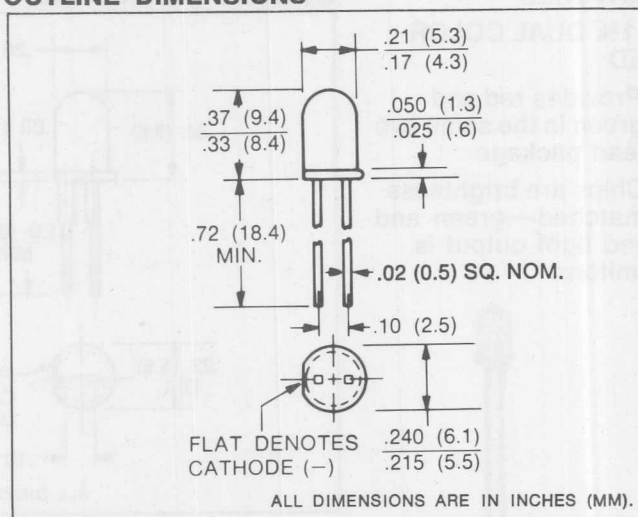
FEATURES

T-1 $\frac{3}{4}$ BRITE LEDs

- Low current - requires only 2 mA.
- Ideal for limited-current power supplies



OUTLINE DIMENSIONS



	UNITS	4300H1LC	4300H5LC	4300H7LC
Output Color		Red	Green	Yellow
Diffused — Non Diffused		Diffused	Diffused	Diffused
Package Color		Red	Green	Yellow
Viewing Angle	deg.	50	50	50
Min. Lum. Intensity @ Rated Current	mcd	1.2	1.2	1.2
Typ. Lum. Intensity @ Rated Current	mcd	2.0	2.5	2.0
Rated Current	mA	2	2	2
Forward Voltage — Typ.	V	1.8	1.8	1.9
Forward Voltage — Max.	V	2.2	2.2	2.7
Continuous Forward Current, Max.	mA	7	7	7
Peak Forward Current @ 1 ms — 300 PPS	A	.007	.007	.007
Reverse Breakdown Voltage (Min.)	V	5	5	5
Peak Wave Length	nm	635	565	583
Dissipation Max. @ 25°C	mW	27	24	24
Derate Linearity from 25°C	mW/°C	—	—	—
Capacitance @ V = 0	pF	4	4	4



SOLID STATE LED LAMPS

HIGH BRITE BI-COLOR T-1 $\frac{3}{4}$ (5 mm)

RED/GREEN

MODEL 4301H1/5

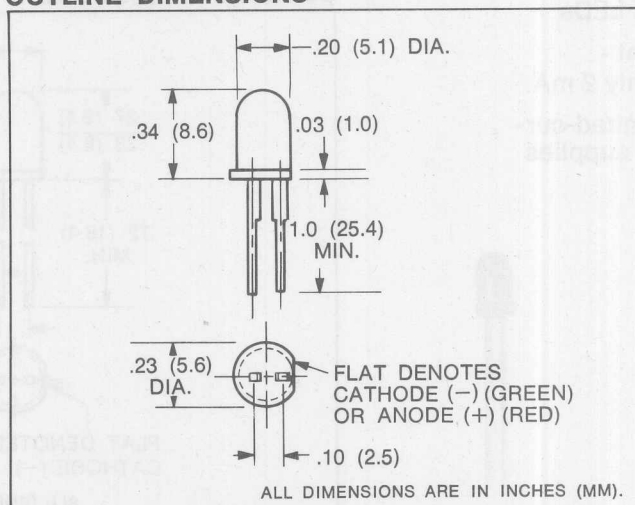
FEATURES

T-1 $\frac{3}{4}$ DUAL COLOR LED

- Provides red and green in the same two lead package
- Chips are brightness matched—green and red light output is uniform



OUTLINE DIMENSIONS



	UNITS	4301H1/5
Output Color		Red/Green
Diffused — Non Diffused		Diffused
Package Color		Clear
Viewing Angle	deg.	50
Min. Lum. Intensity @ Rated Current	mcd	Red-0.6 Green-0.6
Typ. Lum. Intensity @ Rated Current	mcd	Red-6.0 Green-7.0
Rated Current	mA	10
Forward Voltage — Typ.	V	2.2
Forward Voltage — Max.	V	2.8
Continuous Forward Current, Max.	mA	25
Peak Forward Current @ 1 ms — 300 PPS	A	.06
Reverse Breakdown Voltage (Min.)	V	—
Peak Wave Length	nm	R-697 G-565
Dissipation Max. @ 25°C	mW	115
Derate Linearly from 25°C	mW/°C	1.5
Capacitance @ V = 0	pF	100



SOLID STATE LED LAMP

BI-POLAR—AC/DC OPERATION T-1 $\frac{3}{4}$ (5 mm)

RED/RED
GREEN/GREEN
YELLOW /
YELLOW

MODELS 4301H1/1, 4301H5/5, 4301H7/7

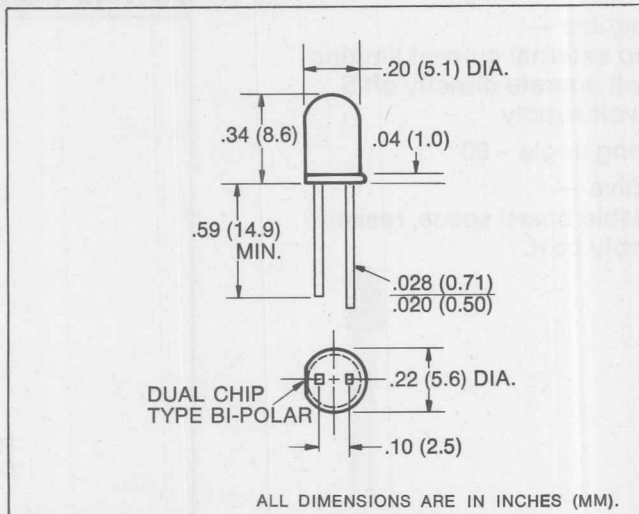
FEATURES

T-1 $\frac{3}{4}$ **SUPER BRITE** (GREEN)
BI-POLAR LEDs

- Ideal for use on AC or DC where polarity cannot be determined.



OUTLINE DIMENSIONS



	UNITS	4301H1/1	4301H5/5	4301H7/7
Output Color		Red	Green	Yellow
Diffused — Non Diffused		Diffused	Diffused	Diffused
Package Color		Red	Green	Yellow
Viewing Angle	deg.	100	100	100
Min. Lum. Intensity @ Rated Current	mcd	3.2	3.2	3.2
Typ. Lum. Intensity @ Rated Current	mcd	20	20	20
Rated Current	mA	20	20	20
Forward Voltage — Typ.	V	2.0	2.2	2.1
Forward Voltage — Max.	V	2.5	2.5	2.5
Continuous Forward Current, Max.	mA	30	25	30
Peak Wave Length	nm	625	565	590
Dissipation Max. @ 25°C	mW	105	105	105
Capacitance @ V = 0	mW/°C	12	45	10



SOLID STATE LED LAMP

INTEGRATED RESISTOR

5 VOLT AND 12 VOLT OPERATION T-1 $\frac{3}{4}$ (5mm)

RED
AMBER
GREEN

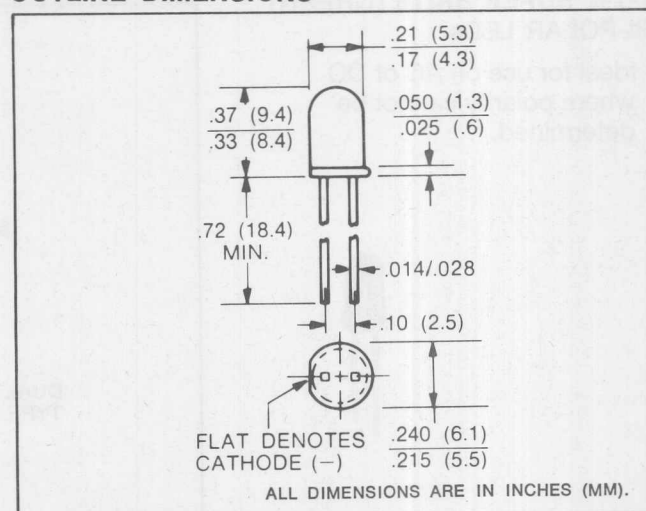
SERIES 4302H-5V, 4302H-12V

FEATURES

- Integral current limiting resistor
- TTL compatible — requires no external current limiting resistor, will operate directly off 5 volt or 12 volt supply
- Wide viewing angle - 90°
- Cost effective — saves valuable board space, resistor and assembly cost.



OUTLINE DIMENSIONS



	UNITS	4302H1-5V	4302H3-5V	4302H5-5V	4302H1-12V	4302H3-12V	4302H5-12V
Output Color		Red	Amber	Green	Red	Amber	Green
Diffused — Non Diffused		Diffused	Diffused	Diffused	Diffused	Diffused	Diffused
Package Color		Red	Amber	Green	Red	Amber	Green
Viewing Angle	deg.	65	75	75	60	60	60
Min. Lum. Intensity @ Rated Current	mcd	1.5	1.5	1.5	1.5	1.5	1.5
Typ. Lum. Intensity @ Rated Current	mcd	6.0	7.0	10.0	4.0	4.0	4.0
Rated Current	mA	10	10	12	13	13	13
Forward Voltage—Typ.	V	5	5	5	12	12	12
Forward Voltage—Max.	V	7.5	7.5	7.5	15	15	15
Continuous Forward Current, Max.	mA	15	15	15	20	20	20
Reverse Breakdown Voltage (Min.)	V	5	5	5	5	5	5
Peak Wave Length	nm	635	583	565	635	583	565



SOLID STATE LED LAMPS

SUPER BRITE 30 mcd T-1 $\frac{3}{4}$ (5 mm)

RED
AMBER
GREEN
YELLOW

SERIES 4304H

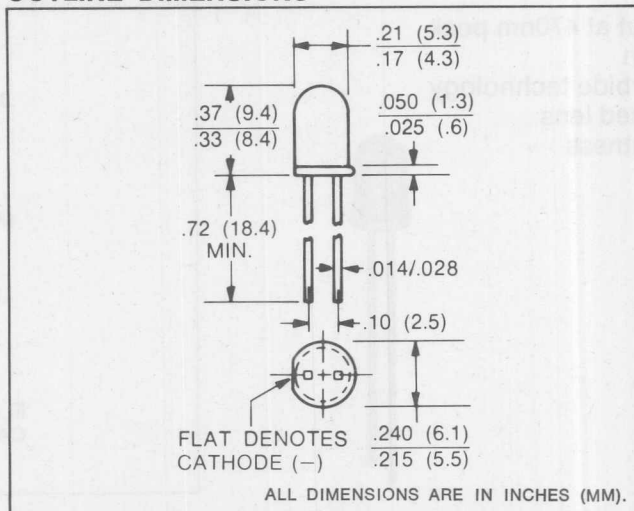
FEATURES

T-1 $\frac{3}{4}$ SUPER BRITE
LEDs

- High-intensity light output
- Wide viewing angle



OUTLINE DIMENSIONS



	UNITS	4304H1	4304H3	4304H5	4304H7
Output Color		Red	Amber	Green	Yellow
Diffused—Non Diffused		Diffused	Diffused	Diffused	Diffused
Package Color		Red	Amber	Green	Yellow
Viewing Angle	deg.	65	60	75	65
Min. Lum. Intensity @ Rated Current	mcd	3.0	4.0	3.0	2.5
Typ. Lum. Intensity @ Rated Current	mcd	30	20	30	25
Rated Current	mA	20	20	20	20
Forward Voltage—Typ.	V	2.0	2.2	2.2	2.1
Forward Voltage—Max.	V	3.0	3.0	3.0	3.0
Continuous Forward Current, Max.	mA	35	30	30	35
Peak Forward Current @ 1 Ms—300 PPS	A	1.0	.09	.09	1.0
Reverse Breakdown Voltage (Min.)	V	5	5	5	5
Peak Wave Length	nm	635	608	562	585
Dissipation Max. @ 25°C	mW	120	135		120
Derate Linearly from 25°C	mW/°C	1.14	—	—	1.14
Capacitance @ V=0	pF	45	4	20	45



SOLID STATE LED LAMPS

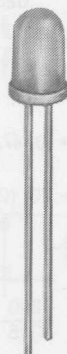
HIGH BRIGHTNESS T-1 $\frac{3}{4}$ (5mm)

BLUE

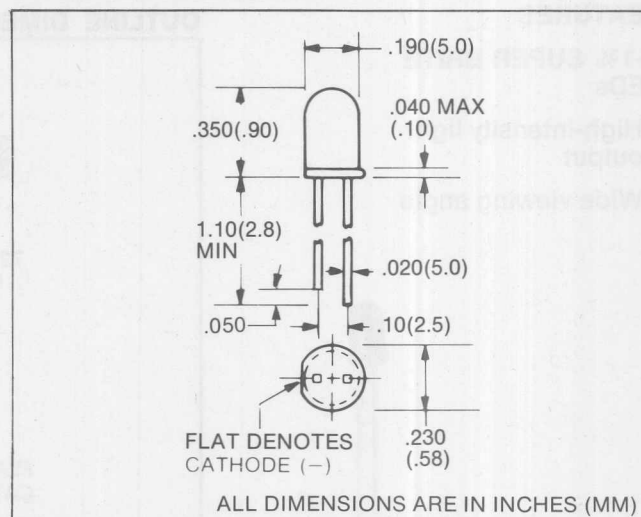
MODEL 4304H6

FEATURES

- T-1 $\frac{3}{4}$ LED
- Blue output at 470nm peak wavelength
- Silicon carbide technology
- Blue diffused lens
- High brightness



OUTLINE DIMENSIONS



	UNITS	4304H6
Output Color		Blue
Diffused—Non Diffused		Diffused
Package Color		Clear
Viewing Angle	deg	40
Min. Lum. Intensity @ Rated Current	mcd	4.0
Typ. Lum. Intensity @ Rated Current	mcd	6.0
Rated Current	mA	45
Forward Voltage - Typ.	V	3.4
Forward Voltage - Max.	V	3.9
Continuous Forward Current Max.	mA	50
Peak Forward Current @ 1ms-300pps	A	.115
Reverse Breakdown Voltage (Min.)	V	5
Peak Wave Length	nm	470
Dissipation Max. @25°C	mW	200



SOLID STATE LED LAMPS

HIGH BRITE LOW PROFILE T-1 $\frac{3}{4}$ (5mm)

RED
GREEN
YELLOW

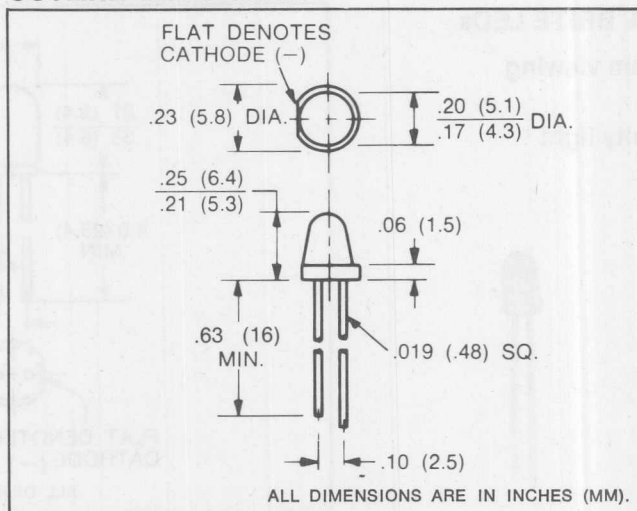
SERIES 4304S

FEATURES

- High Brite
- Wide viewing angle



OUTLINE DIMENSIONS



	UNITS	4304S1	4304S5	4304S7
Output Color		Red	Green	Yellow
Diffused — Non Diffused		Diffused	Diffused	Diffused
Package Color		Red	Green	Yellow
Viewing Angle	deg.	50	50	50
Min. Lum. Intensity @ Rated Current	mcd	2.0	.5	1.5
Typ. Lum. Intensity @ Rated Current	mcd	4.0	3.0	9.0
Rated Current	mA	10	10	10
Forward Voltage — Typ.	V	2.0	2.2	2.1
Forward Voltage — Max.	V	3.0	3.0	3.0
Continuous Forward Current, Max.	mA	35	30	35
Peak Forward Current @ 1 ms — 300 PPS	A	1.0	.09	1.0
Reverse Breakdown Voltage (Min.)	V	5	5	5
Peak Wave Length	nm	630	562	585
Dissipation Max. @ 25°C	mW	105	180	105
Derate Linearly from 25°C	mW/°C	1.14	—	1.14
Capacitance @ V = 0	pF	45	20	45



SOLID STATE LED LAMPS

ULTRA BRITE 120 mcd T-1³/₄ (5mm)

RED
GREEN
YELLOW

SERIES 4305H

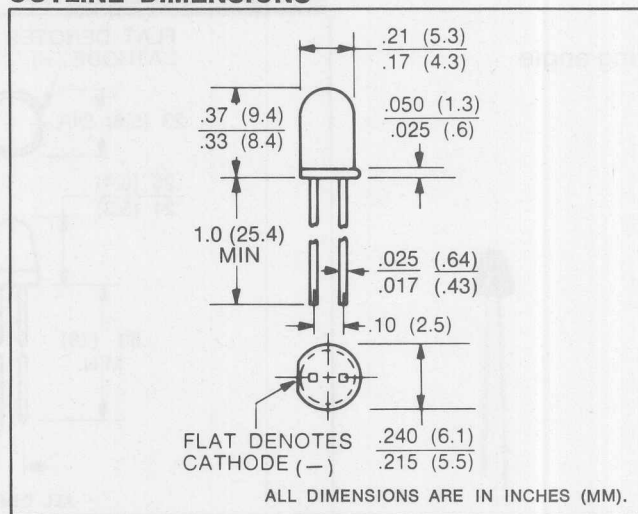
FEATURES

T-1³/₄ ULTRA BRITE LEDs

- Narrow beam viewing angle
- High-intensity light output



OUTLINE DIMENSIONS



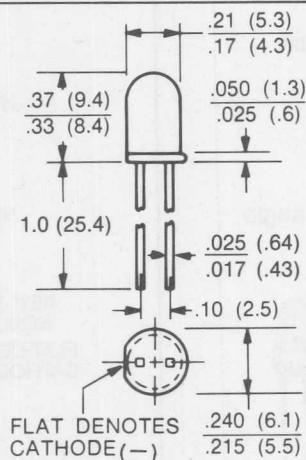
	UNITS	4305H1	4305H5	4305H7
Output Color		Red	Green	Yellow
Diffused — Non Diffused		Non-Diffused	Non-Diffused	Non-Diffused
Package Color		Red	Green	Yellow
Viewing Angle	deg.	28	35	28
Min. Lum. Intensity @ Rated Current	mcd	17	20	17
Typ. Lum. Intensity @ Rated Current	mcd	120	120	120
Rated Current	mA	20	20	20
Forward Voltage — Typ.	V	2.0	2.1	2.1
Forward Voltage — Max.	V	3.0	2.5	3.0
Continuous Forward Current, Max.	mA	35	20	35
Peak Forward Current @ 1 ms — 300 PPS	A	1.0	.09	1.0
Reverse Breakdown Voltage (Min.)	V	5	5	5
Peak Wave Length	nm	635	555	585
Dissipation Max. @ 25°C	mW	120	120	120
Capacitance @ V = 0	pF	45	20	45



RED
GREEN
YELLOW

FEATURES

- High-intensity light output
- Clear non-diffused lens
- Ideal for high ambient light conditions



ALL DIMENSIONS ARE IN INCHES (MM).

	UNITS	4308H1	4308H5	4308H7
Output Color		Red	Green	Yellow
Diffused — Non Diffused		Non-Diff.	Non-Diff.	Non-Diff.
Package Color		Clear	Clear	Clear
Viewing Angle	deg.	24	24	24
Min. Lum. Intensity @ Rated Current	mcd	100	80	80
Typ. Lum. Intensity @ Rated Current	mcd	240	170	190
Rated Current	mA	20	20	20
Forward Voltage — Typ.	V	1.8	2.3	2.2
Forward Voltage — Max.	V	2.2	3.0	3.0
Continuous Forward Current, Max.	mA	20	25	20
Peak Wave Length	nm	645	565	583
Dissipation Max. @ 25°C	mW	87	135	85
Derate Linearly from 25°C	mW/°C	—	—	—
Capacitance @ V = 0	pF	30	18	18



SOLID STATE LED LAMPS

SUN BRITE 1000 mcd T-1 3/4 (5mm)

RED

MODELS 4310H1, 4310H21

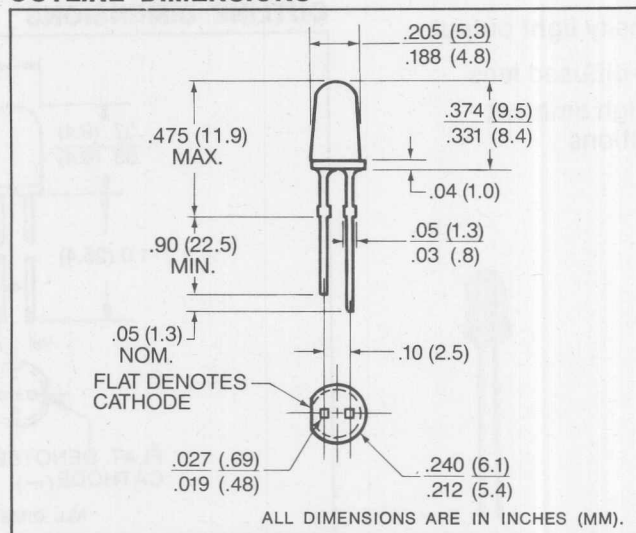
FEATURES

T-1 3/4 SUN BRITE LEDs

- One full candella-highest intensity light output—
- Intense beam of light
- Ideal for high ambient light conditions
- Choice of margin or wide angle
- AlGa As Chip material



OUTLINE DIMENSIONS



	UNITS	4310H1	4310H21
Output Color		Red	Red
Diffused — Non Diffused		Non-Diffused	Non-Diffused
Package Color		Clear	Clear
Viewing Angle	deg.	12	24
Min. Lum. Intensity @ Rated Current	mcd	700	290
Typ. Lum. Intensity @ Rated Current	mcd	1000	700
Rated Current	mA	20	20
Forward Voltage — Typ.	V	2.0	1.9
Forward Voltage — Max.	V	3.0	2.4
Continuous Forward Current, Max.	mA	50	50
Peak Forward Current @ 1 ms — 300 PPS	A	.3	.3
Reverse Breakdown Voltage (Min.)	V	4	4
Peak Wave Length	nm	645	650
Dissipation Max. @ 25°C	mW	87	130
Capacitance @ V = 0	pF	30	20



SOLID STATE LED LAMPS

HIGH BRITE TRI-COLOR T-1³/₄ (5mm)

RED/GREEN
AMB/GREEN

MODEL 4361H1/5, 4361H3/5

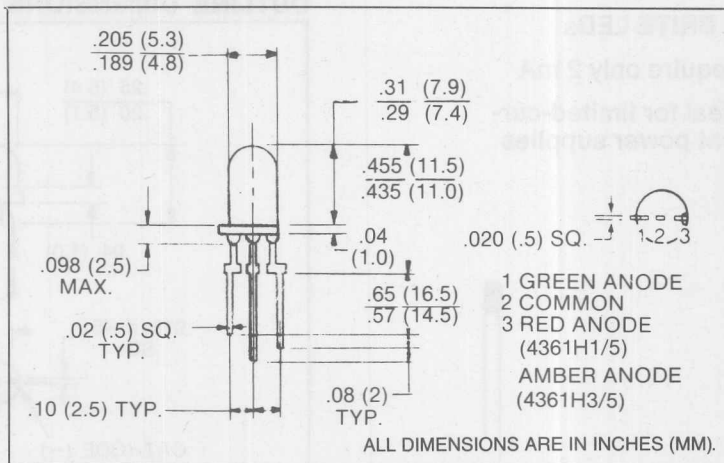
FEATURES

T-1³/₄ Tri-color LED

- Provides red, green and amber in same three lead package
- Chips are brightness matched
- Lights amber when both chips are illuminated



OUTLINE DIMENSIONS



	UNITS	4361H1/5	4361H3/5
Output Color		Red/Green	Amber/Green
Diffused—Non Diffused		Diffused	Diffused
Package Color		Clear	Clear
Viewing Angle	deg.	80	80
Min. Lum. Intensity @ Rated Current	mcd	Red 1.5 Green 1.5	Amber 1.5 Green 1.5
Typ. Lum. Intensity @ Rated Current	mcd	Red 7.0 Green 5.0	Amber 5.0 Green 5.0
Rated Current	mA	15	15
Forward Voltage—Typ.	V	2.1	2.1
Forward Voltage—Max.	V	2.8	2.8
Continuous Forward Current, Max.	mA	20	20
Reverse Breakdown Voltage (Min.)	V	4	4
Peak Wave Length	nm	Red -635 Grn-565	Amber-610 Grn-565
Dissipation Max. @ 25°C	mW	75	75



SOLID STATE LED LAMPS

LOW CURRENT T-1 (3mm)

RED
GREEN
YELLOW

SERIES 4300FLC

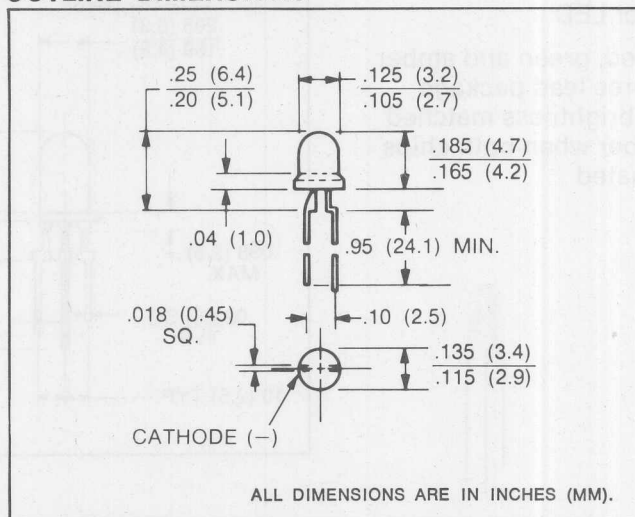
FEATURES

T-1 BRITE LEDs

- Require only 2 mA
- Ideal for limited-current power supplies



OUTLINE DIMENSIONS



	UNITS	4300F1LC	4300F5LC	4300F7LC
Output Color		Red	Green	Yellow
Diffused — Non Diffused		Diffused	Diffused	Diffused
Package Color		Red	Green	Yellow
Viewing Angle	deg.	50	50	50
Min. Lum. Intensity @ Rated Current	mcd	1.0	1.0	1.0
Typ. Lum. Intensity @ Rated Current	mcd	1.8	1.6	1.8
Rated Current	mA	2	2	2
Forward Voltage — Typ.	V	1.8	1.8	1.9
Forward Voltage — Max.	V	2.2	2.2	2.7
Continuous Forward Current, Max.	mA	7	7	7
Peak Forward Current @ 1 ms-300 PPS	A	.007	.007	.007
Reverse Breakdown Voltage (Min.)	V	5	5	5
Peak Wave Length	nm	635	565	583
Dissipation Max. @ 25°C	mW	27	24	24
Derate Linearly from 25°C	mW/°C	—	—	—
Capacitance @ V = 0	pF	4	4	4



SOLID STATE LED LAMPS

BI-COLOR SUPER BRITE T-1 (3mm)

RED/
GREEN

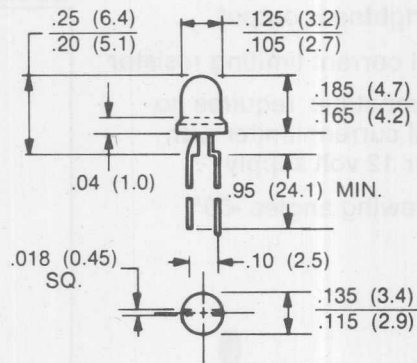
MODEL 4301F1/5

FEATURES

- Dual chip
- Uniformity of output color
- Wide viewing angle
- Clear Diffused



OUTLINE DIMENSIONS



NOTE: SHORT LEAD - GREEN CATHODE/RED ANODE

ALL DIMENSIONS ARE IN INCHES (MM).

	UNITS	4301F1/5
Output Color		Red/Green
Diffused — Non-Diffused		Diffused
Package Color		Clear
Viewing Angle	deg	100
Min. Lum. Intensity @ Rated Current	mcd	2.5
Typ. Lum. Intensity @ Rated Current	mcd	10.0
Rated Current	mA	20
Forward Volt — Typ.	V	2.1
Forward Volt — Max.	V	3.0
Continous Forward Current, Max.	mA	25
Reverse Breakdown Volt (Min.)	V	5.0
Peak Wave Length	nm	650-Red 567-Green
Dissipation Max. @ 25°C	mW	1.8



SOLID STATE LED LAMPS

INTEGRATED RESISTOR 5 VOLTS 12 VOLTS T-1 (3mm)

RED
AMBER
GREEN

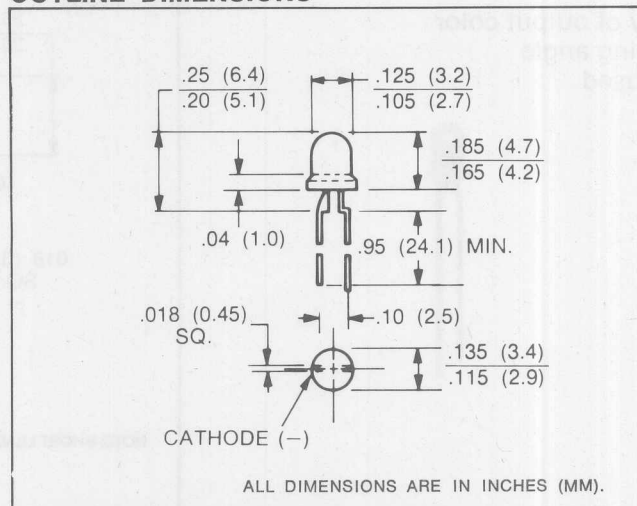
SERIES 4302F-5V, 4302F-12V

FEATURES

- High brightness output
- Integral current limiting resistor
- TTL compatible requires no external current limiter with 5 volt or 12 volt supply
- Wide viewing angles -60°



OUTLINE DIMENSIONS



	UNITS	4302F1-5V	4302F3-5V	4302F5-5V	4302F1-12V	4302F3-12V	4302F5-12V
Output Color		Red	Amber	Green	Red	Amber	Green
Diffused—Non Diffused		Diffused	Diffused	Diffused	Diffused	Diffused	Diffused
Package Color		Red	Amber	Green	Red	Amber	Green
Viewing Angle	deg.	60	60	60	60	60	60
Min. Lum. Intensity @ Rated Current	mcd	2.0	2.0	2.0	2.0	2.0	2.0
Typ. Lum. Intensity @ Rated Current	mcd	8.0	8.0	8.0	8.0	8.0	8.0
Rated Current	mA	13	10	12	13	10	12
Forward Voltage—Typ.	V	5	5	5	12	12	12
Forward Voltage—Max.	V	7.5	7.5	7.5	15	15	15
Continuous Forward Current, Max.	mA	20	15	15	20	20	20
Reverse Breakdown Voltage (Min.)	V	5	5	5	5	5	5
Peak Wave Length	nm	655	583	565	655	583	565
Forward Current @ Typ. Voltage	mA	13	10	12	13	13	13
Forward Current @ Typ. Voltage	mA	20	15	15	20	20	20



SOLID STATE LED LAMPS

SUPER BRITE T-1 (3mm)

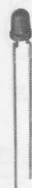
RED
AMBER
GREEN
YELLOW

SERIES 4303F

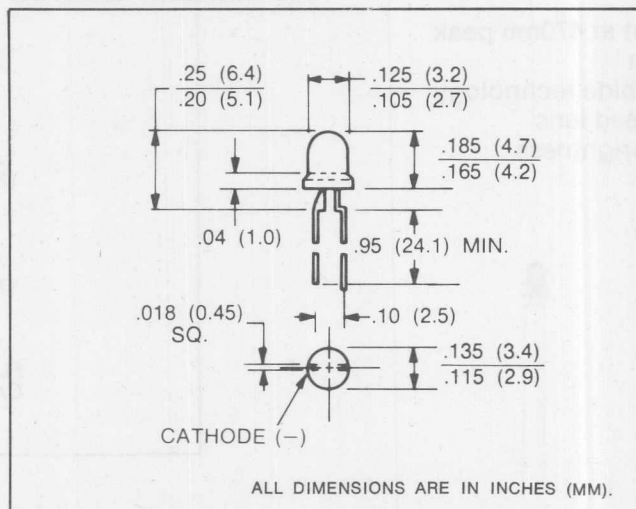
FEATURES

T-1 SUPER BRITE LEDs

- High intensity light output
- Diffused lens
Wide viewing angle - 90°



OUTLINE DIMENSIONS



	UNITS	4303F1	4303F3	4303F5	4303F7
Output Color		Red	Amber	Green	Yellow
Diffused—Non Diffused		Diffused	Diffused	Diffused	Diffused
Package Color		Red	Amber	Green	Yellow
Viewing Angle	deg.	90	60	90	90
Min. Lum. Intensity @ Rated Current	mcd	1.5	3.0	2.0	1.5
Typ. Lum. Intensity @ Rated Current	mcd	6	4.0	12	20
Rated Current	mA	10	10	20	20
Forward Voltage—Typ.	V	2.0	2.2	2.2	2.1
Forward Voltage—Max.	V	3.0	3.0	3.0	3.0
Continuous Forward Current, Max.	mA	30	30	30	30
Peak Forward Current @ 1 Ms—300 PPS	A	1.0	.5	.09	1.0
Reverse Breakdown Voltage (Min.)	V	5	5	5	5
Peak Wave Length	nm	635	603	562	585
Dissipation Max. @ 25°C	mW	120	135	120	120
Derate Linearly from 25°C	mW/°C	—	—	—	—
Capacitance @ V=0	pF	45	4	20	45



SOLID STATE LED LAMPS

STANDARD BRIGHTNESS T-1 (3mm)

BLUE

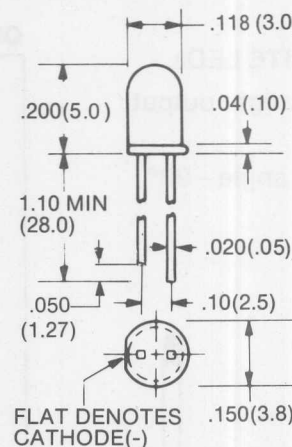
MODEL 4303F6

FEATURES

- T-1 LED
- Blue output at 470nm peak wavelength
- Silicon carbide technology
- Clear diffused lens
- Standard brightness



OUTLINE DIMENSIONS



ALL DIMENSIONS ARE IN INCHES (MM)

	UNITS	4303F6
Output Color		Blue
Diffused—Non Diffused		Diffused
Package Color		Clear
Viewing Angle	deg	48
Min. Lum. Intensity @ Rated Current	mcd	2.0
Typ. Lum. Intensity @ Rated Current	mcd	4.0
Rated Current	mA	30
Forward Voltage -Typ.	V	3.2
Forward Voltage - Max.	V	3.5
Continuous Forward Current Max.	mA	35
Peak Forward Current @ 1ms-300pps	A	.115
Reverse Breakdown Voltage (Min.)	V	5
Peak Wave Length	nm	470
Dissipation Max. @25°C	mW	125



SOLID STATE LED LAMPS

SUPER BRITE 65 mcd (red) T-1 (3 mm)

RED
GREEN
YELLOW

SERIES 4318F

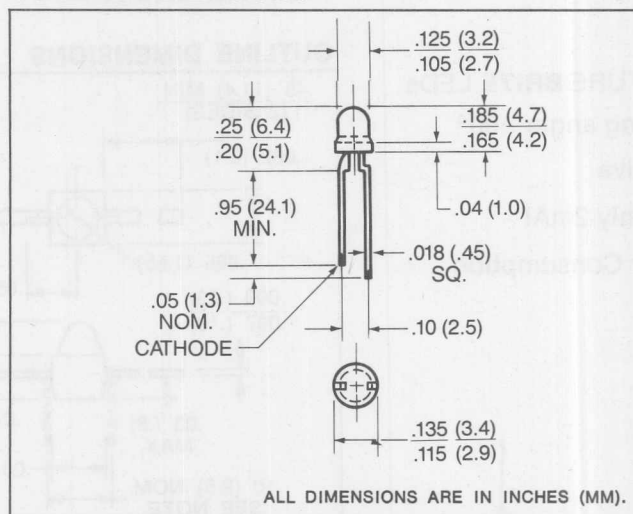
FEATURES

T-1 SUPER BRITE LEDs

- High-intensity light output
- Ideal for high ambient light conditions



OUTLINE DIMENSIONS



	UNITS	4318F1	4318F5	4318F7
Output Color		Red	Green	Yellow
Diffused — Non Diffused		Non-Diff.	Non-Diff.	Non-Diff.
Package Color		Clear	Clear	Clear
Viewing Angle	deg.	45	45	45
Min. Lum. Intensity @ Rated Current	mcd	35	24	24
Typ. Lum. Intensity @ Rated Current	mcd	65	80	65
Rated Current	mA	20	20	20
Forward Voltage — Typ.	V	1.8	2.3	2.2
Forward Voltage — Max.	V	2.2	3.0	3.0
Continuous Forward Current, Max.	mA	20	25	20
Reverse Breakdown Voltage (Min.)	V	5.0	5.0	5.0
Peak Wave Length	nm	650	565	583
Dissipation Max. @ 25°C	mW	—	135	85
Derate Linearly from 25°C	mW/°C	—	1.8	—
Capacitance @ V = 0	pF	30	18	18



SOLID STATE LED LAMPS

SUB-MINIATURE 1.65 mm

RED
GREEN
YELLOW

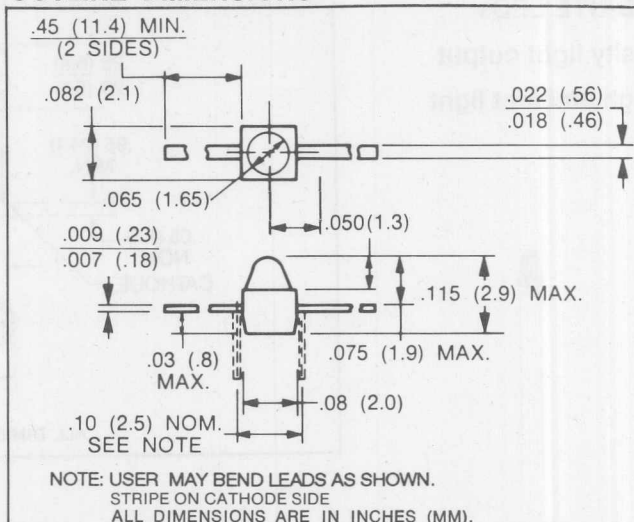
SERIES 4300TLC

FEATURES

SUB-MINIATURE BRITE LEDs

- Wide viewing angle - 90°
- Cost effective
- Requires only 2mA!
- Low Power Consumption

OUTLINE DIMENSIONS



	UNITS	4300T1LC	4300T5LC	4300T7LC
Output Color		Red	Green	Yellow
Diffused — Non Diffused		Diffused	Diffused	Diffused
Package Color		Red	Green	Yellow
Viewing Angle	deg.	90	90	90
Min. Lum. Intensity @ Rated Current	mcd	0.4	0.4	0.4
Typ. Lum. Intensity @ Rated Current	mcd	0.8	1.2	0.6
Rated Current	mA	2	2	2
Forward Voltage — Typ.	V	1.8	1.8	1.9
Forward Voltage — Max.	V	2.2	2.2	2.7
Continuous Forward Current, Max.	mA	7	7	7
Peak Forward Current @ 1 ms-300 PPS	A	.007	.007	.007
Reverse Breakdown Voltage (Min.)	V	5	5	5
Peak Wave Length	nm	635	565	583
Dissipation Max. @ 25°C	mW	24	24	36
Derate Linearity from 25°C	mW/°C	—	—	—
Capacitance @ V = 0	pF	4	4	4



SOLID STATE LED LAMPS

SUB-MINIATURE 1.65mm
INTEGRATED RESISTOR - 5 VOLTS

RED
AMBER
GREEN

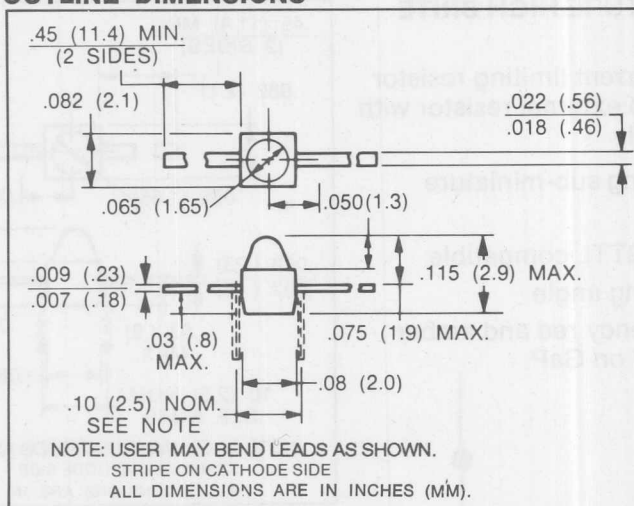
SERIES 4302T-5V

FEATURES

SUB-MINIATURE HIGH BRITE LED

- Integral current limiting resistor
- TTL compatible—requires no external current limiter
- Wide viewing angle 90°
- High brightness—5mcd

OUTLINE DIMENSIONS





SOLID STATE LED LAMPS

SUB-MINIATURE 1.65mm
INTEGRATED RESISTOR 5 VOLT-LOW CURRENT

RED
AMBER
GREEN

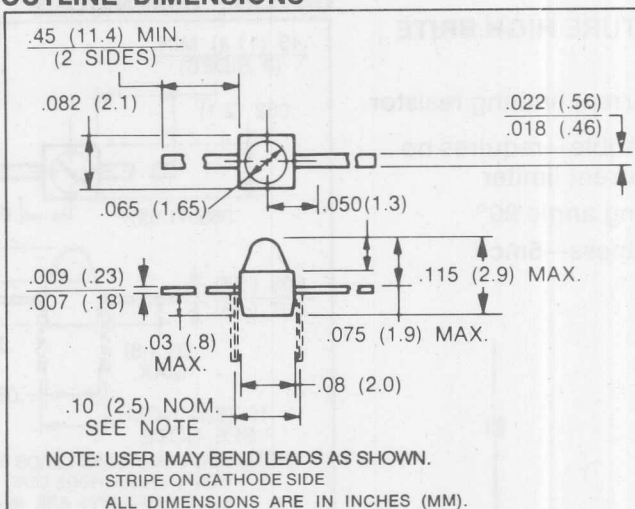
SERIES 4302T-5VLC

FEATURES

SUB-MINIATURE HIGH BRITE LED

- Integral current limiting resistor requires no external resistor with 5 volt supply
- Space saving sub-miniature package
- TTL and LSTTL compatible
- Wide viewing angle
- High efficiency red and amber
Use GaAsP on GaP

OUTLINE DIMENSIONS



	UNITS	4302T1-5VLC	4302T3-5VLC	4302T5-5VLC
Output Color		Red	Amber	Green
Diffused — Non Diffused		Diffused	Diffused	Diffused
Package Color		Red	Amber	Green
Viewing Angle	deg.	90	90	90
Min. Lum. Intensity @ Rated Current	mcd	0.8	0.9	0.9
Typ. Lum. Intensity @ Rated Current	mcd	2.0	4.0	2.0
Rated Current	mA	3.5	3.5	3.5
Forward Voltage — Typ.	V	5	5	5
Forward Voltage — Max.	V	6	6	6
Continuous Forward Current, Max.	mA	5	5	5
Reverse Breakdown Voltage (Min.)	V	5	5	5
Peak Wave Length	nm	635	583	565
Forward Current @ $V_f = 5V$ Typ.	mA	3.5	3.5	3.5
Forward Current @ $V_f = 5V$ Max.	mA	5	5	5



SOLID STATE LED LAMPS

SUB-MINIATURE 1.65mm

RED
AMBER
GREEN
YELLOW

SERIES 4307T

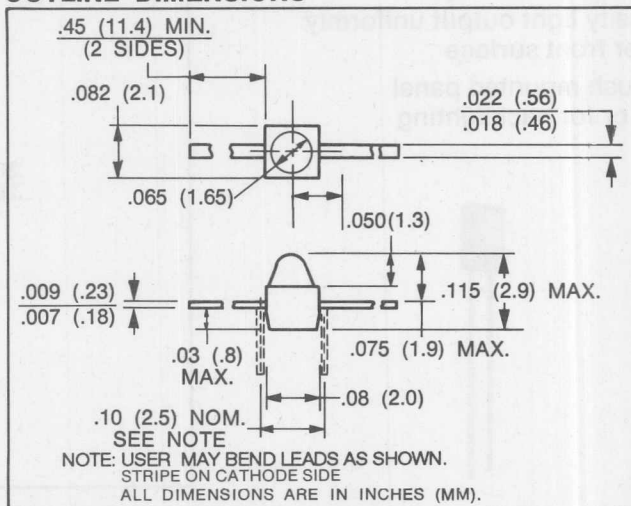
FEATURES

SUB-MINIATURE HIGH BRITE
LEDs 5 mcd (red)

- High-intensity light output
- Low profile package
- Wide viewing angle
- Diffused epoxy lens provides high on-off contrast ratio



OUTLINE DIMENSIONS



	UNITS	4307T1	4307T3	4307T5	4307T7
Output Color		Red	Amber	Green	Yellow
Diffused—Non Diffused		Diffused	Diffused	Diffused	Diffused
Package Color		Red	Amber	Green	Yellow
Viewing Angle	deg.	80	90	70	90
Min. Lum. Intensity @ Rated Current	mcd	1.0	1.0	1.0	1.0
Typ. Lum. Intensity @ Rated Current	mcd	5.0	3.0	4.0	3.8
Rated Current	mA	10	10	10	10
Forward Voltage—Typ.	V	2.2	2.2	2.3	2.2
Forward Voltage—Max.	V	3.0	3.0	3.0	3.0
Continuous Forward Current, Max.	mA	30	30	30	20
Peak Forward Current @ 1 Ms—300 PPS	A	.06	.09	.06	.06
Reverse Breakdown Voltage (Min.)	V	5	5	5	5
Peak Wave Length	nm	635	603	565	583
Dissipation Max. @ 25°C	mW	120	135	120	120
Capacitance @ V=0	pF	11	4	18	15



SOLID STATE LED LAMP

RECTANGULAR 2 x 5 MM

RED
GREEN
YELLOW
AMBER

SERIES 4306D

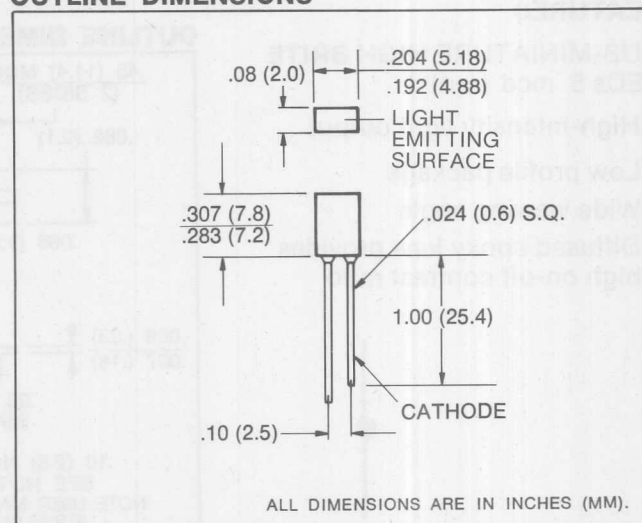
FEATURES

Rectangular 2 x 5 mm Shape

- High intensity light output uniformly spread over front surface
- Ideal for flush mounted panel indicators or for backlighting legends



OUTLINE DIMENSIONS



	UNITS	4306D11	4306D15	4306D17	4306D23
Output Color		Red	Green	Yellow	Amber
Diffused—Non Diffused		Diffused	Diffused	Diffused	Diffused
Package Color		Red	Green	Yellow	Amber
Viewing Angle	deg.	100	100	100	100
Min. Lum. Intensity @ Rated Current	mcd	1.0	1.0	1.0	1.0
Typ. Lum. Intensity @ Rated Current	mcd	4.0	4.0	4.0	4.0
Rated Current	mA	20	20	20	20
Forward Voltage -Typ.	V	2.0	2.2	2.1	2.0
Forward Voltage - Max.	V	3.0	3.0	3.0	3.0
Continuous Forward Current Max.	mA	35	30	35	30
Peak Forward Current @ 1ms-300pps	A	.1	.09	.1	.15
Reverse Breakdown Voltage (Min.)	V	5	5	5	5
Peak Wave Length	nm	635	562	585	625
Dissipation Max. @25°C	mW	120	120	120	105
Derate Linearly from 25°C	mW/°C	1.8	1.6	1.6	1.6
Capacitance @ V=0	pF	45	20	45	45



SOLID STATE LED LAMPS

RECTANGULAR 2.4x7.3 mm

RED
AMBER
GREEN
YELLOW

SERIES 4306R

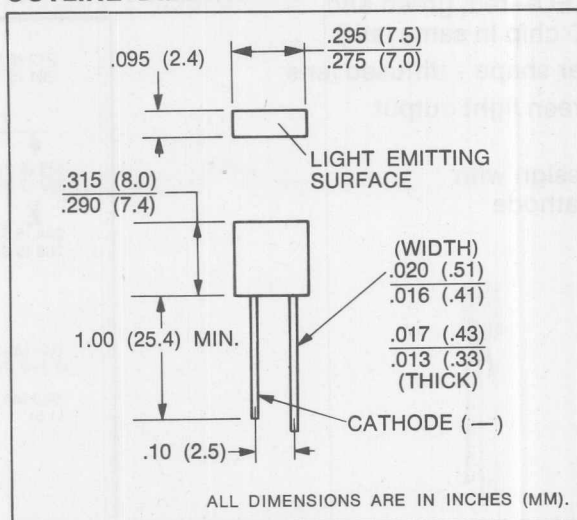
FEATURES

RECTANGULAR HIGH BRITE LED

- High efficiency red GaAsP on GaP
- High intensity light output uniformly spread over front surface
- Ideal for flush mounted panel indicators or for backlighting legends



OUTLINE DIMENSIONS





SOLID STATE LED LAMP

RECTANGULAR 1.8 x 5.3mm TRI-COLOR

RED/GRN/
AMB

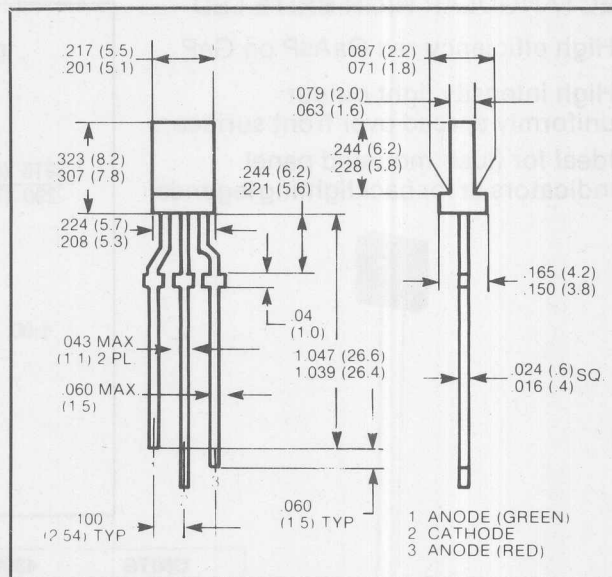
MODEL 4362D1/5

FEATURES

- Tri-color LED—red, green and amber LED chip in same lamp
- Rectangular shape - diffused lens
- Red and green light output is uniform
- 3 leaded design with common cathode



OUTLINE DIMENSIONS



	UNITS	4362D1/5
Output Color		Red/Green
Diffused—Non Diffused		Diffused
Package Color		Clear
Viewing angle	deg.	60°
Min. Lum. Intensity @ Rated Current	mcd	.25
Typ. Lum. Intensity @ Rated Current	mcd	.6
Rated Current	mA	15.0
Forward Voltage—Typ.	V	2.2
Forward Voltage—Max.	V	2.8
Continuous Forward Current, Max.	mA	20
Reverse Breakdown Voltage (Min.)	V	4
Peak Wave Length	nm	635 Red/565 Green



SOLID STATE LED LAMPS

TRI-COLOR 2 mm x 5 mm

RED/
GREEN/
AMBER

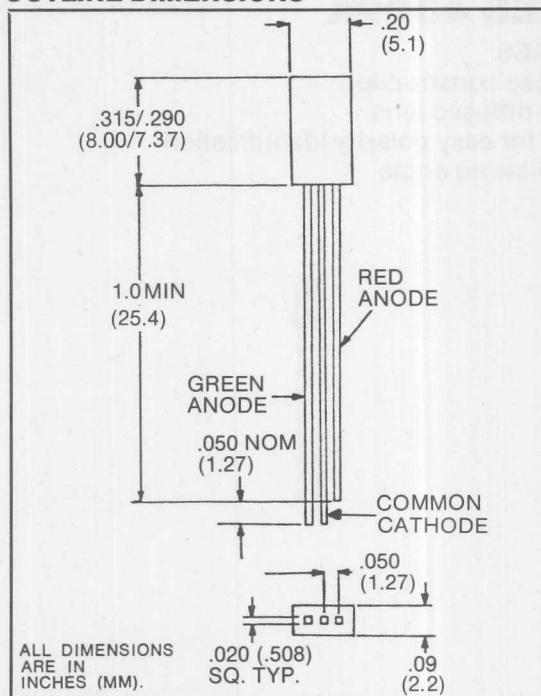
MODEL 4363D1/5

FEATURES

- 3 lead design provides 3 color output
- Two chips matched for brightness
- Rectangular shape
- Diffused on surface, even light distribution, wide viewing angle



OUTLINE DIMENSIONS



	UNITS	4363D1/5	
Output color		Red	Green
Diffused—Non-Diffused		Diffused	Diffused
Package Color		Clear	Clear
Viewing Angle	deg	100	100
Min. Lum. Intensity @ Rated Current	mcd	2.1	2.6
Typ. Lum. Intensity @ Rated Current	mcd	3.5	4.0
Rated Current	mA	20.0	20.0
Forward Volt—Typ.	V	2.1	2.3
Forward Volt—Max.	V	2.5	2.7
Continuous Forward Current, Max.	mA	25.	25.
Peak Forward Current @ 1ms—300 PPS	V	90	90
Reverse Breakdown Volt (Min.)	V	5	5
Peak Wave Length	nm	635	565
Dissipation Max. @ 25°C	mW	135	135
Capacitance @ V=0	pF	11	18



SOLID STATE LED LAMPS

HIGH & SUPER BRITE FLAT NOSE (4 mm)

RED
GREEN
YELLOW

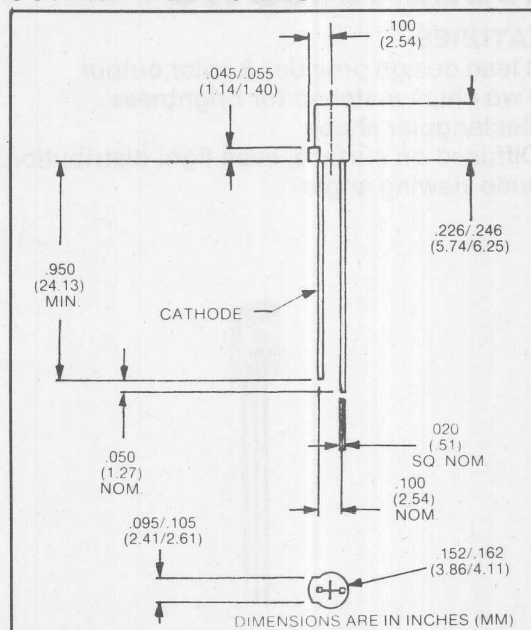
SERIES 4309K

FEATURES

- Flat nose construction
- Tinted diffused lens
- Keyed for easy polarity identification
- Wide viewing angle



OUTLINE DIMENSIONS



	UNITS	4309K1	4309K5	4309K7
Output Color		Red	Green	Yellow
Diffused — Non-Diffused		Diffused	Diffused	Diffused
Package Color		Red	Green	Yellow
Viewing Angle	deg.	135	135	135
Min. Lum. Intensity @ Rated Current	mcd	6.7	5.7	5.4
Typ. Lum. Intensity @ Rated Current	mcd	10.0	7.0	7.0
Rated Current	mA	20	20	20
Forward Volt — Typ.	V	2.2	2.3	2.2
Forward Volt — Max.	V	3.0	3.0	3.0
Continuous Forward Current, Max.	mA	25	20	25
Reverse Breakdown Volt (Min.)	V	5	5	5
Peak Wave Length	nm	635	565	583
Dissipation Max. @ 25°C	mW	135	85	135
Capacitance @ V=0	pF	11	15	18



SOLID STATE LED LAMPS

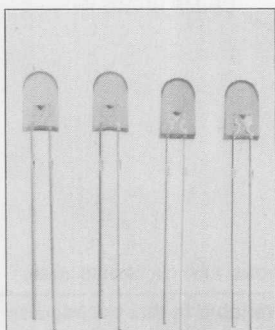
SUPER BRITE "POPSICLE" 2.5mm x 5mm

RED
AMBER
GREEN
YELLOW

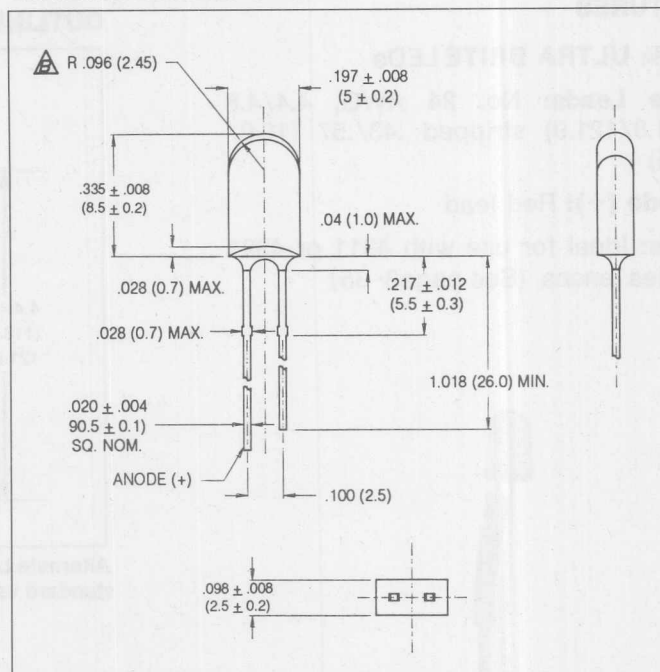
SERIES 4366C

FEATURES

- High intensity light output
- Semi-round top provides wide-angle visibility
- Ideal for modern styling



OUTLINE DIMENSIONS



	UNITS	4366C1	4366C3	4366C5	4366C7
Output Color		RED	Amber	Green	Yellow
Diffused—Non Diffused		Diffused	Diffused	Diffused	Diffused
Package Tint		Red	Amber	Green	Yellow
Viewing Angle	deg.	100	100	100	100
Min. Lum. Intensity @ Rated Current	mcd	12	12	12	12
Typ. Lum. Intensity @ Rated Current	mcd	24	24	24	24
Rated Current	mA	20	20	20	20
Forward Voltage—Typ.	V	1.7	2.2	2.1	2.2
Forward Voltage—Max.	V	2.0	2.8	2.8	2.8
Continuous Forward Current—Max.	mA	50	25	25	30
Reverse Breakdown Voltage—Min.	V	4	4	4	4
Peak Wave Length	nm	660	605	560	580



T-1³/₄ LED WITH EXTENDED LEADS

ULTRA BRITE 120 mcd
NON-DIFFUSED NARROW BEAM

RED
GREEN
YELLOW

SERIES 5705H

FEATURES

• T-1³/₄ ULTRA BRITE LEDs

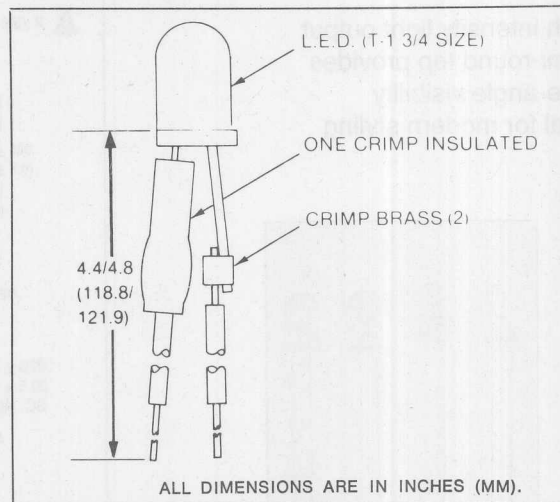
Wire Leads: No. 24 AWG, 4.4/4.8 (111.8/121.9) stripped .43/.57 (10.9/14.5)

Anode (+): Red lead

Lens: Ideal for use with 4311 or 4321 Series lenses (See page3- 35)



OUTLINE DIMENSIONS



Alternate LEDs are also available in this package as standard variations.

FOR COMPLETE LED SPECIFICATIONS SEE PAGE 3-12

SPECIFICATIONS	COLOR	TYPICAL INTENSITY	RATED CURRENT	CONTINUOUS FORWARD CURRENT-MAX	FORWARD VOLTAGE TYP.	FORWARD VOLTAGE MAX.	PEAK FORWARD CURRENT AT 1ms-300 PPS	REVERSE BREAKDOWN VOLTAGE MIN.	PEAK WAVE LENGTH
MODEL NO.		mcd	mA	mA	V	V	A	V	nm
5705H1	RED	120	20	35	2.0	3.0	1.0	5	635
5705H5	GRN	120	20	20	2.1	2.5	—	4	555
5705H7	YEL	120	20	35	2.1	3.0	1.0	5	585

Industrial Devices, Inc., 260 Railroad Ave., Hackensack, NJ 07601 • (201) 489-8989 • FAX: 201-489-6911



MOUNTING CLIPS FOR T-1 (3mm) & T-1 3/4 (5mm) LEDs

MODEL 4303MC

FEATURES

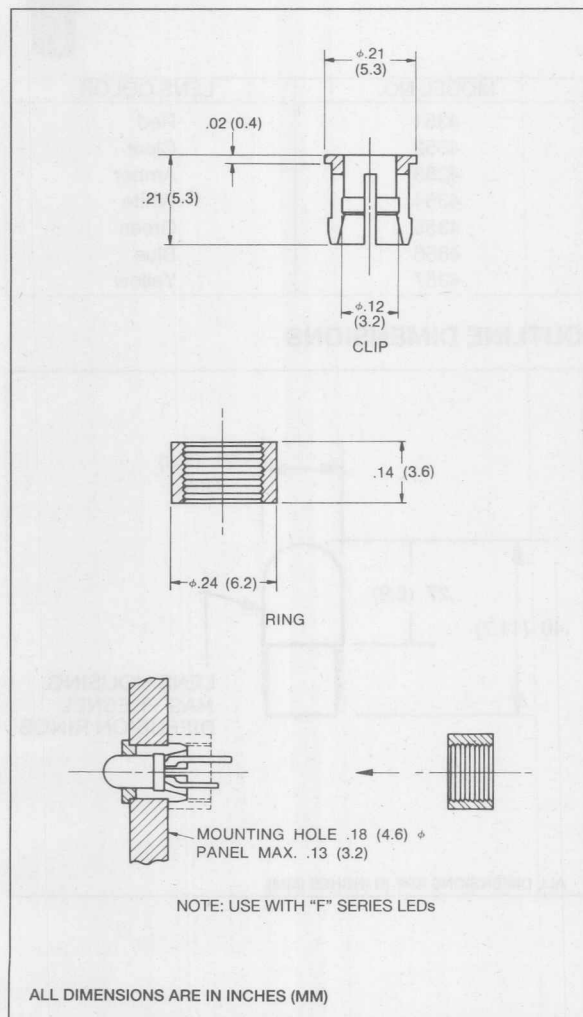
- This attractive and economical mounting clip installs quickly and provides secure mounting for T-1 high dome LEDs such as 4303F Series.

Material: Black polypropylene

Mounting Hole: .18 (.46) min. dia. in panels up to .13 (3.2) thick.



OUTLINE DIMENSIONS



MODEL 4304MC

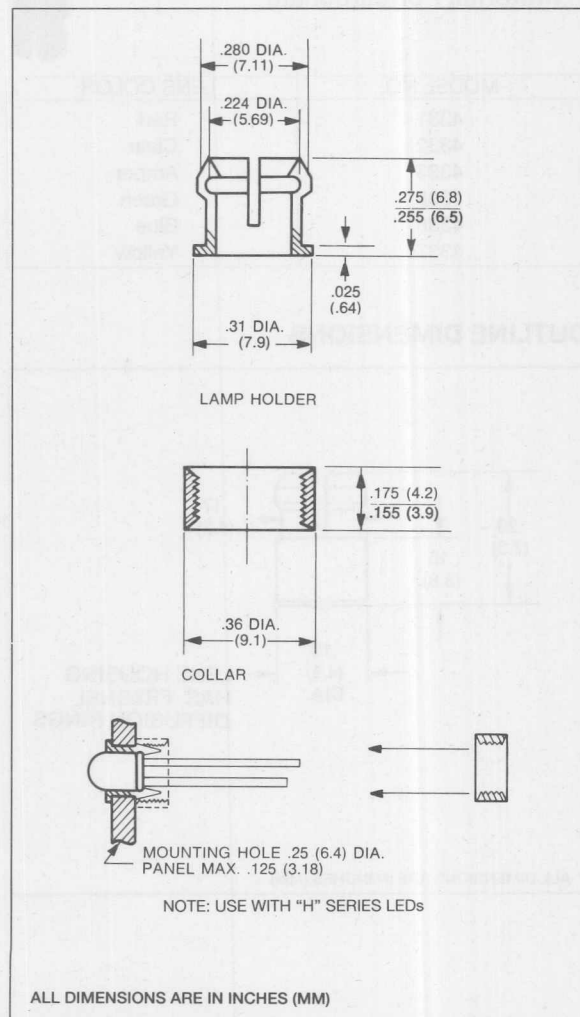
FEATURES

- This attractive and economical mounting clip installs quickly and provides secure mounting for T-1 3/4 high dome LEDs such as 4301H, 4304H, 4305H or 4308H Series.

Material: Black polypropylene

Mounting Hole: .250 (6.35) min. dia. in panels up to .125 (3.18) thick.

OUTLINE DIMENSIONS





PANEL MOUNT LENSES FOR T-1 (3mm) LEDs

SERIES 4331, 4332, 4333, 4335, 4336, 4337

FEATURES

- This is a smaller version of the 4311 series lenses and is designed for T-1 LEDs rather than T-1 $\frac{3}{4}$ LEDs. The plastic lens provides protection against electrostatic discharge.

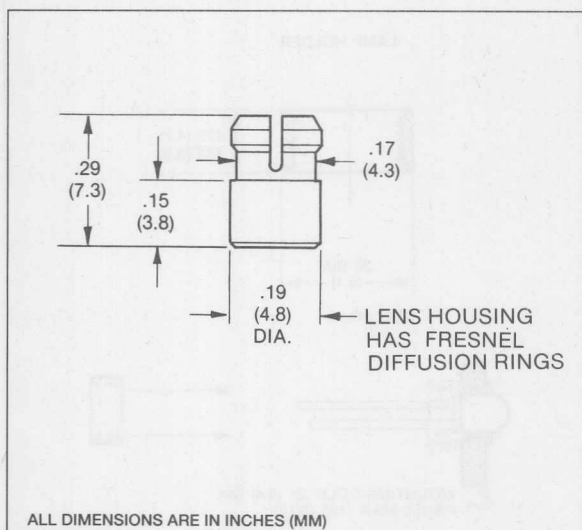
Mounting: Snap into .170/.174 (4.32/4.42) dia. hole in panels .03-.06 (8-1.5) thick.

Material: Polycarbonate



MODEL NO.	LENS COLOR
4331	Red
4332	Clear
4333	Amber
4335	Green
4336	Blue
4337	Yellow

OUTLINE DIMENSIONS



SERIES 4351 THRU 4357

FEATURES

- Attractive snap-in panel lenses provide wide-angle viewing plus mechanical security and electrostatic discharge protection. Ideal for use with T-1 LEDs such as 4303F series.

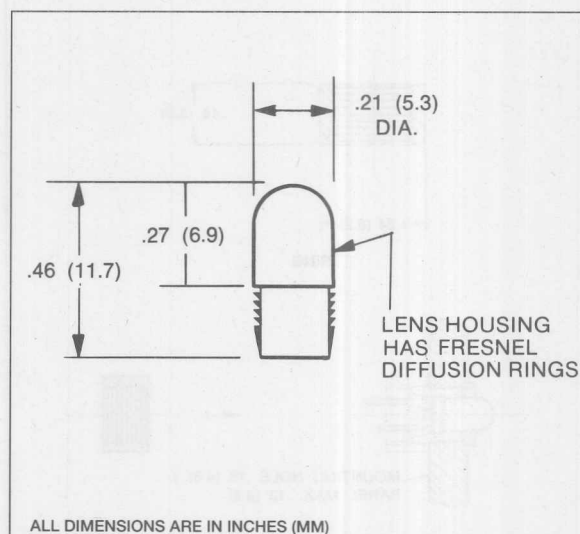
Mounting: Snap into .187/.192 (4.75/4.87) dia. hole in panels .020/.097 (.51/2.46) thick.

Material: Polycarbonate



MODEL NO.	LENS COLOR
4351	Red
4352	Clear
4353	Amber
4354	White
4355	Green
4356	Blue
4357	Yellow

OUTLINE DIMENSIONS





PANEL MOUNT LENSES FOR T-1³/₄ (5mm) LEDs

SERIES 4311, 4312, 4313 4315, 4316, 4317



FEATURES

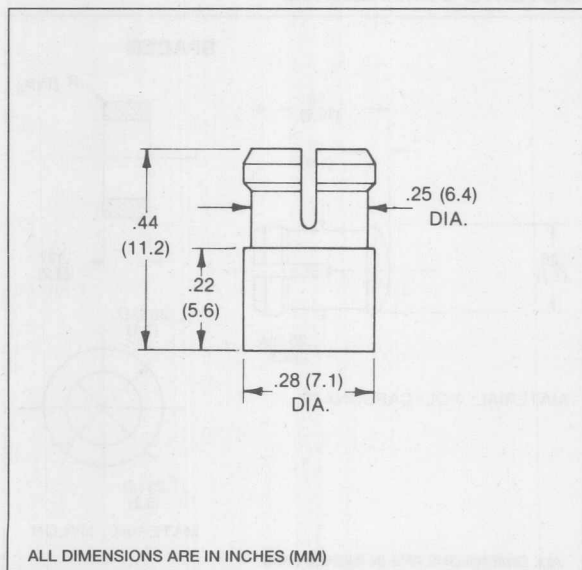
- These lenses provide quick and economical panel mounting, plus electrostatic discharge protection, for T-1³/₄ high dome LEDs. Molded in Fresnel rings spread light evenly, provide wide viewing angle viewing (up to 180°) and bright attractive appearance. Use with narrow-beam LED series 4305H, 4308H and 4310H.

Mounting: Snap into .248/.248 (6.30/6.40) hole in panels .06-.13 (1.5-3.3) thick.

Material: Polycarbonate

MODEL NO.	LENS COLOR
4311	Red
4312	Clear
4313	Amber
4315	Green
4316	Blue
4317	Yellow

OUTLINE DIMENSIONS



SERIES 4321, 4323, 4322, 4325, 4326, 4327



FEATURES

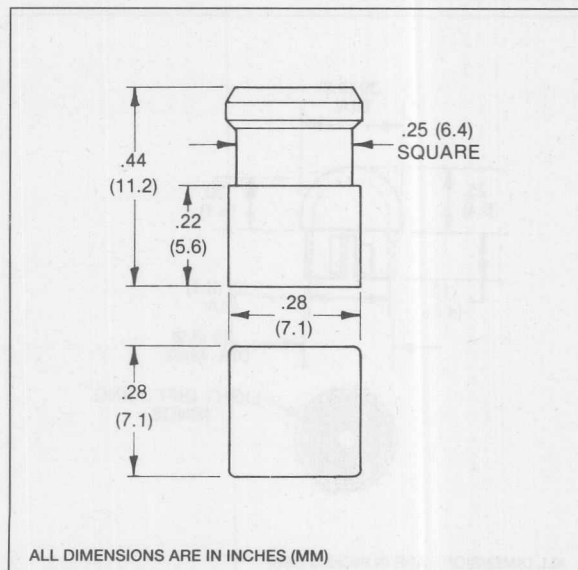
- These lenses provide quick and economical panel mounting, plus electrostatic discharge protection, for T-1³/₄ high dome LEDs. Molded in Fresnel rings spread light evenly, provide wide viewing angle viewing (up to 180°) and bright attractive appearance. Use with narrow-beam LED series 4305H, 4308H and 4310H.

Mounting: Snap into .248/.248 (6.30/6.40) square hole in panels .06/.13 (1.5/3.3) thick. Square lenses may also be gang mounted in slotted hole. .280(7.00) times number of lenses minus .030(.76) long.

Material: Polycarbonate

MODEL NO.	LENS COLOR
4321	Red
4322	Clear
4323	Amber
4325	Green
4326	Blue
4327	Yellow

OUTLINE DIMENSIONS





PANEL MOUNT LENSES FOR T-1³/₄ (5mm) LEDs

SERIES 4341 THRU 4347

FEATURES

- Attractive snap-in panel lenses provide wide-angle viewing plus mechanical security and electrostatic discharge protection. Generous clearance and "forgiving" optics speed product assembly. Ideal for use with narrow beam LEDs, such as 4305H, 4308H or 4310H series— or use with incandescent or neon lamps.

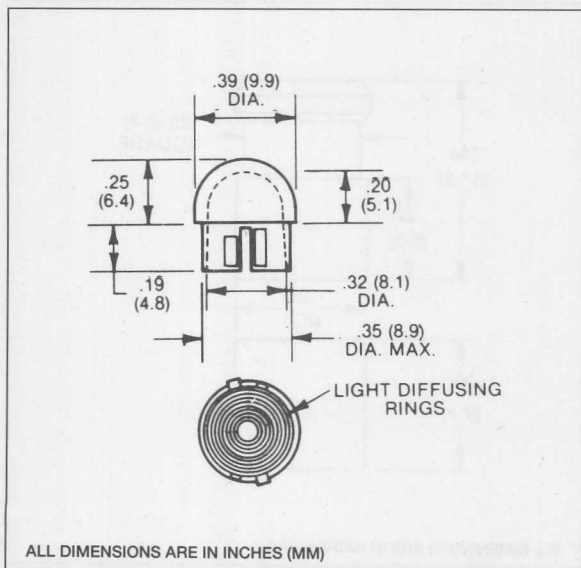


Mounting Hole: Snap into .354/.360 (9.00/9.14) dia. hole in panels .03-.08(.76-2.03) thick.

Material: Polycarbonate

MODEL NO.	LENS COLOR
4341	Red
4342	Clear
4343	Amber
4344	White
4346	Green
4346	Blue
4347	Yellow

OUTLINE DIMENSIONS



SERIES 4371, 4372, 4375, 4376, 4377 LENSES; 4370 SPACER

FEATURES

- These low profile lenses provide quick and economical panel mounting, for T-1³/₄ high dome LEDs. Molded in Fresnel rings spread light evenly, provide wide viewing angle and bright attractive appearance. Use with narrow-beam LED series 4305H, 4308H and 4310H.

Mounting Hole: Snap into .248/.252 (6.30/6.40) dia. hole in panels .03/.25 (.79/6.35) thick.

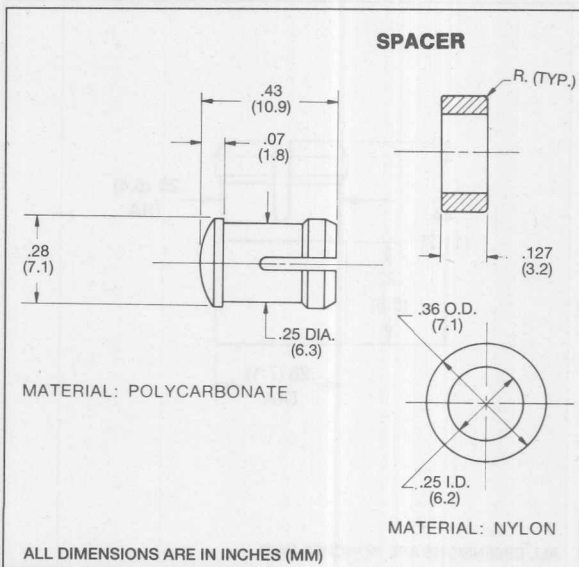


Material: Polycarbonate

Note: Model 4370 spacer required for panels less than .19(.48) thick.

MODEL NO.	LENS COLOR
4371	Red
4372	Clear
4375	Green
4376	Blue
4377	Yellow
4370	Spacer

OUTLINE DIMENSIONS



LENS RETAINER CLIP

MODEL 4740, SERIES 4740, 4750 LENSES

FEATURES **Mounting:** Rear snap-on to lens Models 4741, 4751. Will snapfit into .030/.093 (.76-2.36) thick panel, in a .312/.317 (7.93-8.05) mounting hole.

Lens: Polycarbonate

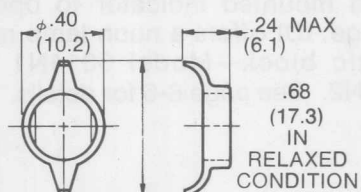
Clip: Natural acetal

Note: Order Model 4740 lens retainer clip and appropriate lens separately.



LENS COLOR	LOW PROFILE MODEL NO.	DOME MODEL NO.
Red	4741	4751
Clear	4742	4752
Amber	4743	4753
White	4744	4754
Green	4745	4755
Blue	4746	4756
Yellow	4747	4757

OUTLINE DIMENSIONS

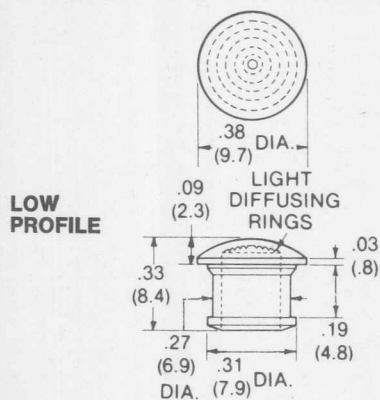


MATERIAL: ACETEL, NATURAL
LENS RETAINER CLIP

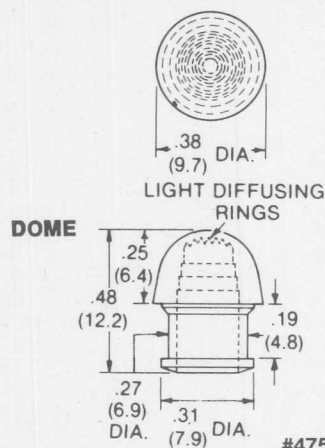
PANEL THICKNESS RANGE: $\frac{.030-.093}{(.76 \text{ } -2.36)}$
MOUNTING HOLE DIAMETER: $\frac{.317}{.312} \left(\frac{8.05}{7.93} \right)$



#4740 CLIP



#4741-4747 LENS



#4751-4757 LENS



LED CIRCUIT BOARD INDICATORS

IDI CAN SOLVE YOUR LED PACKAGING PROBLEMS, SAVE YOU TIME AND MONEY IN PRODUCTION

LEDs present special problems for design engineers. The LED is one of the few circuit components that must also interface with the user of your equipment, yet, unlike switches, LEDs do not come with built-in mounting means or spacers. Use of cut sleeving or spacers is slow, awkward, and often non-uniform; machined insulating blocks can be very expensive and awkward to handle. Lining up board-mounted LEDs with panel opening can cause production nightmares. In addition, bare LEDs can provide a path for static discharge that will damage integrated circuits and other delicate components.

IDI LED assemblies can solve all of these problems. We have a variety of panel-mounted and PC board-mounted assemblies, designed to install quickly, provide proper spacing and insulation as well as uniform and secure mounting. Many IDI panel-mounted assemblies have plastic lenses for added static discharge protection plus attractive wide-angle viewing.

IDI off-the-shelf models incorporate LEDs in a wide variety of colors, brightness levels and packaging to meet the critical needs of the design engineer.

This catalog details many different off-the-shelf models. Standard options include choice of LEDs, leads tailored to your exact needs, and even reverse polarity if required by your circuit. Many models can be supplied with built-in resistors and/or rectifier diode protection.

If the solution to your problem doesn't seem to lie in these pages, please call. We can provide solutions to your problems at surprisingly modest costs—or one of the new products now in development may be the right answer. We look forward to working with you.

For the designer who is looking for a PC board mounted indicator to operate at line voltage, IDI offers a neon lamp mounted in a plastic block—Model 5314N1 and Model 5314N2. See page 6-6 for details.



CIRCUIT BOARD INDICATORS

ULTRA BRITE 120 mcd
LED T-1³/₄ (5 mm) LAMP ASSEMBLY

RED
AMBER
GREEN
YELLOW
BLUE

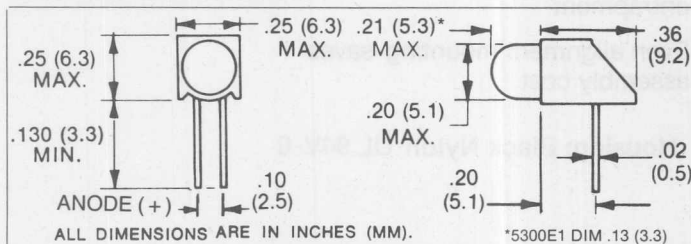
SERIES 5300E, 5300H, 5302H, 5308H

FEATURES

- Block mounting - height and spacing alignment - saves assembly cost
- Full range of brightness - 30 mcd for 5300H1 diffused lens
- Available in low current - 2mA
- Available with built-in resistor chip Eliminates need for external resistor - operates off 5 volt, or 12 volt supply
- TTL compatible
- Standoff design prevents flux entrapment



OUTLINE DIMENSIONS



Housing: Black Nylon, UL 94V-O

Alternate LEDs are also available in this package as standard variations.

SPECIFICATIONS	COLOR	TYPICAL INTENSITY	RATED CURRENT	CONTINUOUS FORWARD CURRENT-MAX	FORWARD VOLTAGE TYP.	FORWARD VOLTAGE MAX.	PEAK FORWARD CURRENT AT 1ms-300 PPS	REVERSE BREAKDOWN VOLTAGE MIN.	PEAK WAVE LENGTH	FOR MORE COMPLETE LED DATA
MODEL NO.		mcd	mA	mA	V	V	A	V	nm	PAGE
5300E1	RED	3.0	20	100	1.7	2.2	1.0	5	660	3-4
5300H1	RED	30.0	20	35	2.0	3.0	1.0	5	635	3-9
5300H3	AMB	20.0	20	35	2.0	3.0	1.0	5	608	3-9
5300H5	GRN	30.0	20	30	2.2	3.0	.09	5	562	3-9
5300H6	BLUE	3.0	45	50	3.4	3.9	—	5	470	3-9
5300H7	YEL	25.0	20	35	2.1	3.0	1.0	5	585	3-9
5308H1	RED	120.0	20	20	3.0	2.2	1.0	5	635	3-12
5308H5	GRN	120.0	20	20	2.5	2.2	.09	5	555	3-12
5308H7	YEL	120.0	20	20	2.1	3.0	1.0	5	585	3-12
5300H1LC	RED	2.0	2	7	1.8	2.2	.007	5	635	3-5
5300H5LC	GRN	2.5	2	7	1.8	2.2	.007	5	565	3-5
5300H7LC	YEL	2.0	2	7	1.9	2.7	.007	5	585	3-5
5302H1-5V	RED	6.0	10	15	5	7.5	—	5	635	3-8
5302H3-5V	AMB	7.0	10	15	5	7.5	—	5	583	3-8
5302H5-5V	GRN	10.0	12	15	5	7.5	—	5	565	3-8
5302H1-12V	RED	4.0	12	2.0	12.0	15.0	—	5	635	3-8
5302H3-12V	AMB	4.0	12	2.0	12.0	15.0	—	5	583	3-8
5302H5-12V	GRN	4.0	12	2.0	12.0	15.0	—	5	565	3-8

ULTRA BRITE

LOW CURRENT

BUILT-IN RESISTOR 5 VOLTS

BUILT-IN RESISTOR 12 VOLTS



CIRCUIT BOARD INDICATOR

BI-COLOR

LED T-1 $\frac{3}{4}$ (5mm) LAMP ASSEMBLY

RED/
GREEN
GREEN/
RED

SERIES 5300H1/5, 5300H5/1

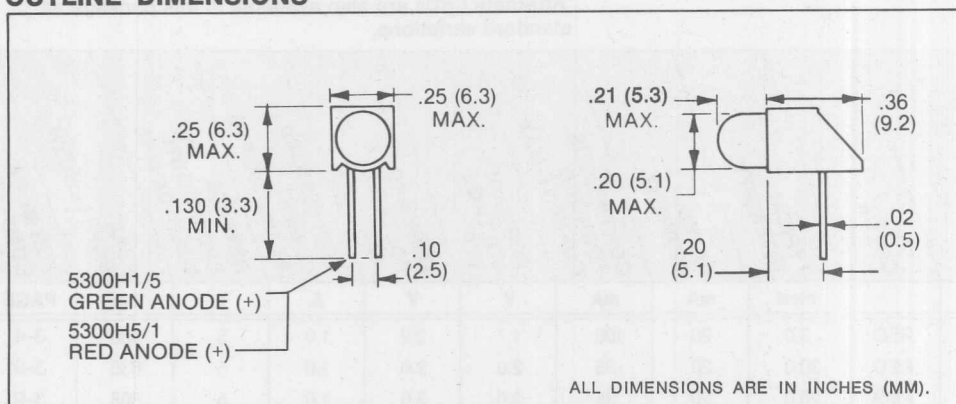
FEATURES

- Bi-color LED— red and green chip within single lamp
- High intensity light output
- Standoff design prevents flux entrapment
- Even alignment mounting-saves assembly cost



Housing: Black Nylon UL 94V-0

OUTLINE DIMENSIONS



Alternate LEDs are also available in this package as standard variations.

SPECIFICATIONS	COLOR	TYPICAL INTENSITY	RATED CURRENT	CONTINUOUS FORWARD CURRENT-MAX	FORWARD VOLTAGE TYP.	FORWARD VOLTAGE MAX	PEAK FORWARD CURRENT AT 1 Ms-300PPS	REVERSE BREAKDOWN VOLTAGE MIN	PEAK WAVE LENGTH	FOR MORE COMPLETE LED DATA
MODEL NO.		mcd	mA	mA	V	V	A	V	nm	PAGE
5300H1/5	RED/GRN	6.0	10	50	2.2	2.8	.06	—	650 R)/565 (G)	3-8
5300H5/1	GRN/RED	6.0	10	50	2.2	2.8	.06	—	565 (G)/650 (R)	3-8

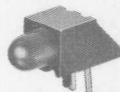


CIRCUIT BOARD INDICATOR

SUPER BRITE 30 mcd
LED T-1 $\frac{3}{4}$ (5 mm) LAMP ASSEMBLY

RED
AMBER
GREEN
YELLOW

SERIES 5307H

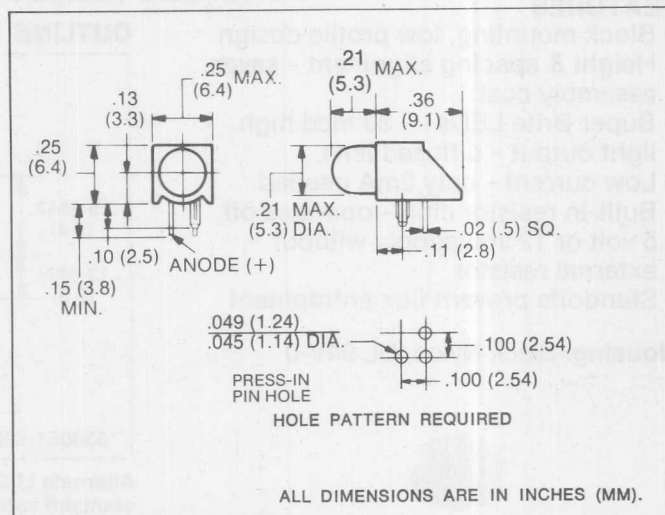


FEATURES

- Press-in pin design - holds block in place while being soldered
- Block mounting, low profile design, height & spacing alignment-saves assembly cost
- Super Brite LEDs - 30 mcd high intensity light output. Diffused lens
- Low current - only 2 mA needed
- Built-in resistor operates off 5 volt supply without external resistor
- Standoffs prevent flux entrapment

Housing: Black Nylon, UL 94V-0

OUTLINE DIMENSIONS



Alternate LEDs are also available in this package as standard variations.

SPECIFICATIONS	COLOR	TYPICAL INTENSITY	RATED CURRENT	CONTINUOUS FORWARD CURRENT-MAX	FORWARD VOLTAGE TYP.	FORWARD VOLTAGE MAX.	PEAK FORWARD CURRENT AT 1ms-300 PPS	REVERSE BREAKDOWN VOLTAGE MIN.	PEAK WAVE LENGTH	FOR MORE COMPLETE LED DATA
MODEL NO.		mcd	mA	mA	V	V	A	V	nm	PAGE
5307H1	RED	30	20	35	2.0	3.0	1.0	5	635	3-9
5307H3	AMB	20	20	35	2.0	3.0	1.0	5	608	3-9
5307H5	GRN	30	20	30	2.2	3.0	.09	5	562	3-9
5307H7	YEL	25	20	35	2.1	3.0	1.0	5	585	3-9
5307H1LC	RED	2.0	2.0	7	1.8	2.2	.007	5	635	3-5
5307H5LC	GRN	2.5	1.8	7	1.8	2.2	.007	5	565	3-5
5307H7LC	YEL	2.0	1.8	7	1.9	2.7	.007	5	583	3-5
5307H1-5V	RED	6	10.0	15	5	7.5	—	5	635	3-8
5307H3-5V	AMB	7.0	10.0	15	5	7.5	—	5	583	3-8
5307H5-5V	GRN	10.0	12.0	15	5	7.5	—	5	565	3-8

LOW CURRENT

BUILT-IN RESISTOR 5 VOLTS



CIRCUIT BOARD INDICATOR

SUPER BRITE 30 mcd (Red, Green)
LED T-1 $\frac{3}{4}$ (5 mm) LAMP ASSEMBLY

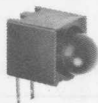
RED
AMBER
GREEN
YELLOW

SERIES 5380E, 5380H

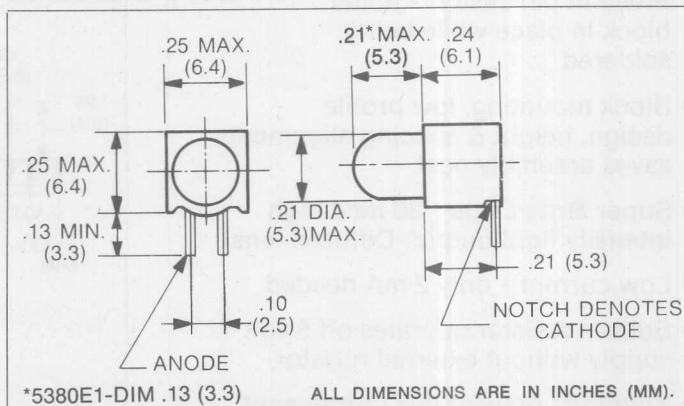
FEATURES

- Block mounting, low profile design
Height & spacing alignment - saves assembly cost
- Super Brite LEDs — 30 mcd high light output - diffused lens
- Low current - only 2mA needed
- Built-in resistor chip - operates off 5 volt or 12 volt supply without external resistor
- Standoffs prevent flux entrapment

Housing: Black Nylon, UL 94V-0



OUTLINE DIMENSIONS



Alternate LEDs are also available in this package as standard variations.

SPECIFICATIONS	COLOR	TYPICAL INTENSITY	RATED CURRENT	CONTINUOUS FORWARD CURRENT-MAX	FORWARD VOLTAGE TYP.	FORWARD VOLTAGE MAX.	PEAK FORWARD CURRENT AT 1ms-300 PPS	REVERSE BREAKDOWN VOLTAGE MIN.	PEAK WAVE LENGTH	FOR MORE COMPLETE LED DATA
MODEL NO.		mcd	mA	mA	V	V	A	V	nm	PAGE
5380E1	RED	3.0	20	100	1.7	3.0	1.0	5.0	660	3-4
5380H1	RED	30.0	20	35	2.0	3.0	1.0	5.0	635	3-9
5380H3	AMB	20.0	20	35	2.0	3.0	1.0	5.0	608	3-9
5380H5	GRN	30.0	20	20	2.2	2.5	.09	5.0	555	3-9
5380H7	YEL	25.0	20	35	2.1	3.0	1.0	5.0	585	3-9
5380H1LC	RED	2.0	2	7	1.8	2.2	.007	5.0	635	3-5
5380H5LC	GRN	2.5	2	7	1.8	2.2	.007	5.0	565	3-5
5380H7LC	YEL	2.0	2	7	1.9	2.7	.007	5.0	585	3-5
5380H1-5V	RED	5.5	10	15	5	7.5	—	5.0	635	3-8
5380H3-5V	AMB	7.0	10	15	5	7.5	—	5.0	583	3-8
5380H5-5V	GRN	10.0	12	15	5	7.5	—	5.0	565	3-8
5380H1-12V	RED	4.0	12	15	12.0	15.0	—	5.0	635	3-8
5380H3-12V	AMB	4.0	12	15	12.0	15.0	—	5.0	583	3-8
5380H5-12V	GRN	4.0	12	15	12.0	15.0	—	5.0	565	3-8

LOW CURRENT

BUILT-IN RESISTOR 5 VOLTS

BUILT-IN RESISTOR 12 VOLTS



CIRCUIT BOARD INDICATOR

SUPER BRITE 30 mcd
LED T-1³/₄ (5 mm) LAMP ASSEMBLY

RED
AMBER
GREEN
YELLOW

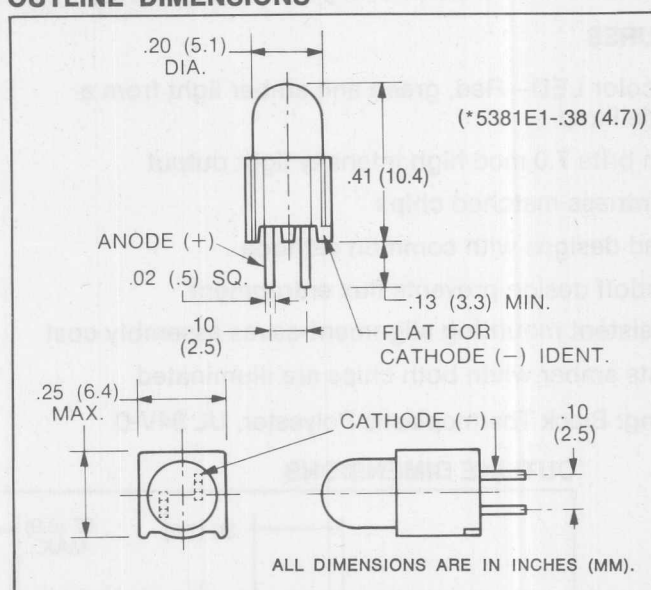
SERIES 5381E, 5381H

FEATURES

- Block mounting, height & spacing alignment-saves assembly cost
- Super Brite LEDs - 30 mcd high light output diffused lens
- Low current - only 2 mA
- Built-in resistor chip - operates directly off 5 volt supply without external resistor
- Standoffs prevent flux entrapment

Housing: Black Nylon, UL 94V-0

OUTLINE DIMENSIONS



Alternate LEDs are also available in this package as standard variations.

SPECIFICATIONS	COLOR	TYPICAL INTENSITY	RATED CURRENT	CONTINUOUS FORWARD CURRENT-MAX	FORWARD VOLTAGE TYP.	FORWARD VOLTAGE MAX.	PEAK FORWARD CURRENT AT 1ms-300 PPS	REVERSE BREAKDOWN VOLTAGE MIN.	PEAK WAVE LENGTH	FOR MORE COMPLETE LED DATA
MODEL NO.		mcd	mA	mA	V	V	A	V	nm	PAGE
5381E1	RED	1.2	20	100	1.7	2.2	1.0	5	660	3-4
5381H1	RED	30	20	35	2.0	3.0	1.0	5	635	3-9
5381H3	AMB	20	20	35	2.0	3.0	1.0	5	608	3-9
5381H5	GRN	30	20	30	2.2	3.0	.09	5	562	3-9
5381H7	YEL	25	20	35	2.1	3.0	1.0	5	585	3-9
5381H1LC	RED	2.0	2.0	7	1.8	2.2	.007	5	635	3-5
5381H5LC	GRN	2.5	1.0	7	1.8	2.2	.007	5	565	3-5
5381H7LC	YEL	2.0	2.0	7	1.9	2.7	.007	5	583	3-5
5381H1-5V	RED	5.5	10.0	15	5	7.5	—	5	635	3-8
5381H3-5V	AMB	7.0	10.0	15	5	7.5	—	5	583	3-8
5381H5-5V	GRN	10.0	12.0	15	5	7.5	—	5	565	3-8

LOW
CURRENT

BUILT-IN
RESISTOR
5 VOLTS



CIRCUIT BOARD INDICATOR

TRI-COLOR

LED T-1 $\frac{3}{4}$ (5mm) LAMP ASSEMBLY

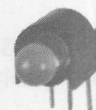
RED/
GREEN/
AMBER

MODEL 5305H1/5, 5305H3/5

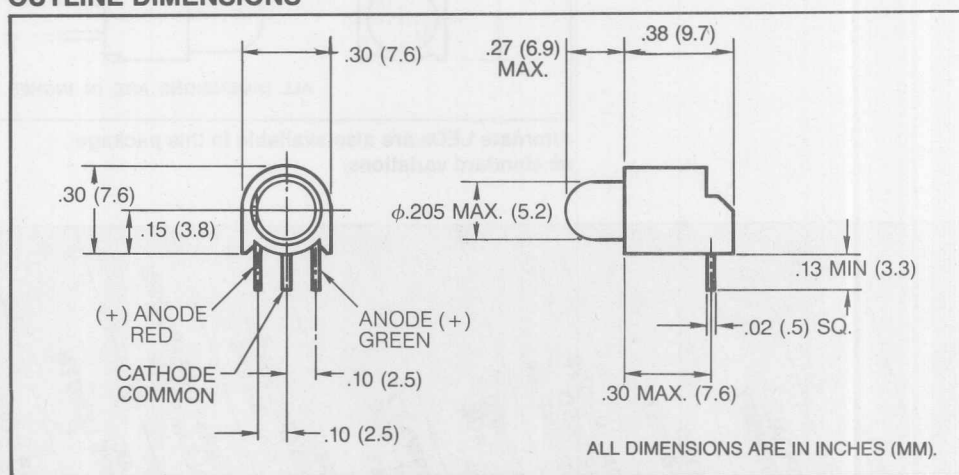
FEATURES

- Tri-color LED—Red, green and amber light from a single lamp
- High brite 7.0 mcd high intensity light output
- Brightness matched chips
- 3 lead designs with common cathode
- Standoff design prevents flux entrapment
- Consistent mounting alignment-saves assembly cost
- Lights amber when both chips are illuminated

Housing: Black Thermoplastic Polyester, UL 94V-0



OUTLINE DIMENSIONS



SPECIFICATIONS	COLOR	TYPICAL INTENSITY	RATED CURRENT	CONTINUOUS FORWARD CURRENT	FORWARD VOLTAGE TYP.	FORWARD VOLTAGE MAX	PEAK FORWARD CURRENT AT 1 Ms-300PPS	REVERSE BREAKDOWN VOLTAGE MIN	PEAK WAVE LENGTH	FOR MORE COMPLETE LED DATA
MODEL NO.		mcd	mA	mA	V	V	A	V	nm	PAGE
5305H1/5	RED/GRN	7.0/5.0	15	20	2.1	2.8	—	4	635 (R)/565 (G)	3-15
5305H3/5	AMB/GRN	5.0/5.0	15	20	2.1	2.8	—	4	610 (A) 565 (G)	3-15



CIRCUIT BOARD INDICATORS

SUPER BRITE 30 mcd
LED T-1 $\frac{3}{4}$ (5 mm) LAMP ASSEMBLY

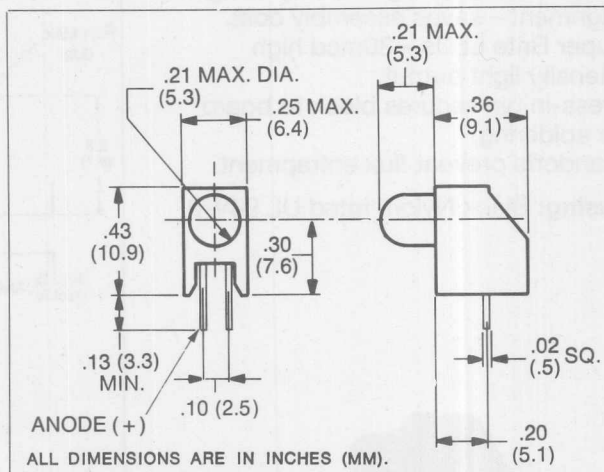
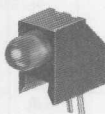
RED
AMBER
GREEN
YELLOW

SERIES 5306H

FEATURES

- Block mounting, height and spacing alignment-saves assembly cost
- Super Brite LEDs - 30 mcd high intensity light output, diffused lens
- Low current - only 2mA needed
- Built-in resistor - operates off 5 volt supply without external resistor
- Standoffs prevent flux entrapment

Housing: Black Nylon



Alternate LEDs are also available in this package as standard variations.

SPECIFICATIONS	COLOR	TYPICAL INTENSITY	RATED CURRENT	CONTINUOUS FORWARD CURRENT	FORWARD VOLTAGE MAX.	FORWARD VOLTAGE TYP.	FORWARD VOLTAGE MAX.	PEAK FORWARD CURRENT AT 1ms-300PPS	REVERSE BREAKDOWN VOLTAGE MIN.	PEAK WAVE LENGTH	FOR MORE COMPLETE LED DATA
MODEL NO.		mcd	mA	mA	V	V	V	A	V	nm	PAGE
5306H1	RED	30	20	35	2.0	3.0	1.0	5	635	3-9	
5306H3	AMB	20	20	35	2.0	3.0	1.0	5	608	3-9	
5306H5	GRN	30	20	30	2.2	3.0	.09	5	562	3-9	
5306H7	YEL	25	20	35	2.1	3.0	1.0	5	585	3-9	
5306H1LC	RED	2.0	2.0	7	1.8	2.2	.007	5	635	3-5	LOW CURRENT
5306H5LC	GRN	2.5	2.0	7	1.8	2.2	.007	5	565	3-5	
5306H7LC	YEL	2.0	20	7	1.9	2.7	.007	5	583	3-5	
5306H1-5V	RED	5.5	10	15	5	7.5	—	5	635	3-8	BUILT-IN RESISTOR 5 VOLTS
5306H3-5V	AMB	7.0	10	15	5	7.5	—	5	565	3-8	
5306H5-5V	GRN	10.0	12	15	5	7.5	—	5	565	3-8	



CIRCUIT BOARD INDICATORS

SUPER BRITE 30 mcd

LED T-1 $\frac{3}{4}$ (5 mm) LAMP ASSEMBLY

RED
AMBER
GREEN
YELLOW

SERIES 5338H

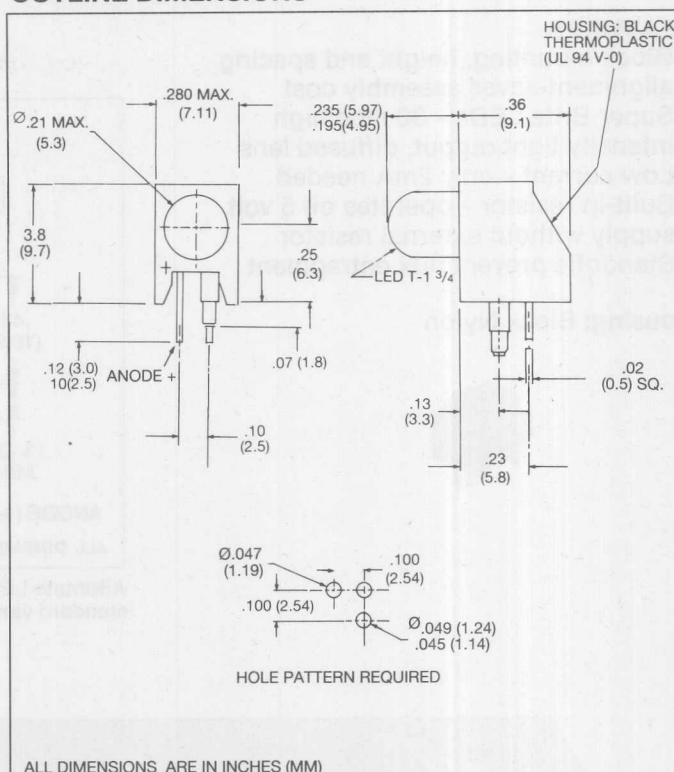
FEATURES

- Block mounting height and spacing alignment – saves assembly cost.
- Super Brite LEDs – 30mcd high intensity light output.
- Press-in pin secures block to board for soldering.
- Standoffs prevent flux entrapment.

Housing: Black Nylon, rated UL 94V-0.



OUTLINE DIMENSIONS



Alternate LEDs are also available in this package as standard variations

SPECIFICATIONS	COLOR	TYPICAL INTENSITY	RATED CURRENT	CONTINUOUS FORWARD CURRENT-MAX.	FORWARD VOLTAGE TYP.	FORWARD VOLTAGE MAX.	PEAK FORWARD CURRENT AT 1ms-300PPS	REVERSE BREAKDOWN VOLTAGE MIN.	PEAK WAVE LENGTH	FOR MORE COMPLETE LED DATA
MODEL NO.		mcd	mA	mA	V	V	A	V	nm	PAGE
5338H1	RED	30	20	35	2.0	3.0	1.0	5	635	3-9
5338H3	AMB	20	20	35	2.0	3.0	1.0	5	608	3-9
5338H5	GRN	30	20	30	2.2	3.0	.09	5	562	3-9
5338H7	YEL	25	20	35	2.1	3.0	1.0	5	585	3-9



CIRCUIT BOARD INDICATOR

PIGGY BACK

LED T-1³/₄ (5 mm) LAMP ASSEMBLY

RED
AMBER
GREEN
YELLOW

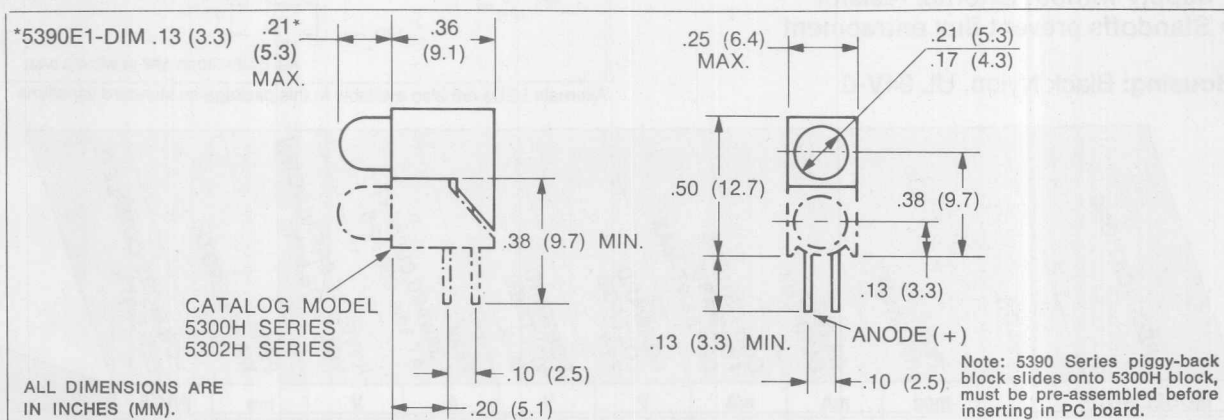
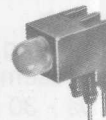
SERIES 5390E, 5390H, 5392H

FEATURES

Piggy Back mounts on 5300E and H Series;
5307H, 5308H, 5640E and H Series.

- Easy installation - slides onto 5300 series blocks
- Allows 2 LEDs in the same board area required for a single LED
- Diffused lens provides high contrast ratio, High light output

Housing: Black Nylon



Alternate LEDs are also available in this package as standard variations.

SPECIFICATIONS	COLOR	TYPICAL INTENSITY	RATED CURRENT	CONTINUOUS FORWARD CURRENT-MAX	FORWARD VOLTAGE TYP.	FORWARD VOLTAGE MAX.	PEAK FORWARD CURRENT AT 1ms-300 PPS	REVERSE BREAKDOWN VOLTAGE MIN.	PEAK WAVE LENGTH	FOR MORE COMPLETE LED DATA
MODEL NO.		mcd	mA	mA	V	V	A	V	nm	PAGE
5390E1	RED	3.0	20	100	1.7	2.2	1.0	5	660	3-4
5390H1	RED	30	20	35	2.0	3.0	1.0	5	635	3-9
5390H3	AMB	20	20	35	2.0	3.0	1.0	5	608	3-9
5390H5	GRN	30	20	30	2.2	3.0	.09	5	562	3-9
5390H7	YEL	25	20	35	2.1	3.0	1.0	5	585	3-9
5390H1LC	RED	2.0	7	2	1.8	2.2	.007	5	635	3-5
5390H5LC	GRN	1.8	7	2	1.8	2.2	.007	5	565	3-5
5390H7LC	YEL	1.8	7	2	1.9	2.7	.007	5	585	3-5
5392H1-5V	RED	6.0	1.0	15	5	7.5	—	5	635	3-8
5392H3-5V	AMB	7.0	10	15	5	7.5	—	5	583	3-8
5392H5-5V	GRN	10.0	10	15	5	7.5	—	5	565	3-8

LOW
CURRENT
BUILT-IN
RESISTOR
5 VOLTS

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CIRCUIT BOARD INDICATOR

DUAL MOUNTED

LED T-1³/₄ (5 mm) LAMP ASSEMBLY

RED/RED
AMB/AMB
GREEN/GREEN
YELLOW/YELLOW

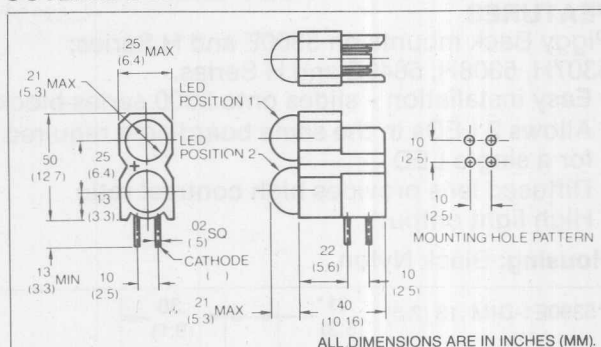
SERIES 5670E, 5670H

FEATURES

- Allows 2 LEDs in same board area-dual mounting
- Single block mounting, height & spacing alignment saves assembly cost
- Super Brite LEDs - 30 mcd, high light output, diffused lens
- Low current - only 2mA needed
- Built-in resistor chip - operates off 5 volt supply without external resistor
- Standoffs prevent flux entrapment



OUTLINE DIMENSIONS



Alternate LEDs are also available in this package as standard variations

SPECIFICATIONS	COLOR	TYPICAL INTENSITY	RATED CURRENT	CONTINUOUS FORWARD CURRENT-MAX	FORWARD VOLTAGE TYP.	FORWARD VOLTAGE MAX.	PEAK FORWARD CURRENT AT 1ms-300 PPS	REVERSE BREAKDOWN VOLTAGE MIN.	PEAK WAVE LENGTH	FOR MORE COMPLETE LED DATA
MODEL NO.		mcd	mA	mA	V	V	A	V	nm	PAGE
5670H1;1	RED/RED	30	20	35	2.0	3.0	1.0	5	635	3-9
5670H3;3	AMB/AMB	20	20	35	2.0	3.0	1.0	5	608	3-9
5670H5;5	GRN/GRN	30	20	30	2.2	3.0	.09	5	662	3-9
5670H7;7	YEL/YEL	25	20	35	2.1	3.0	1.0	5	585	3-9
5670E1;1	RED/RED	20	20	35	2.0	3.0	1.0	5	635	3-9

The model numbers listed above are standard off the shelf parts, for the user who may have a requirement calling for various color/electrical specifications; a part number can be determined by referring to the chart shown below.

MODEL NO. IS AS FOLLOWS: **5670H**

LED 1

LED 2

LED COLOR	LED CODE	INTENSITY TYP mcd	RATED CURRENT mA	FWD CURRENT MAX A	FWD VOLT TYP V	FWD VOLT MAX V	REVERSE VOLT MAX V	PEAK WAVE LENGTH nm	FOR MORE COMPLETE LED DATA PAGE
RED	1LC	2.0	2.0	7	1.8	2.2	5	635	3-5
GREEN	5LC	2.5	2.0	7	1.8	2.2	5	565	3-5
YELLOW	7LC	2.0	2.0	7	1.9	2.7	5	583	3-5
RED	1-5V	5.5	10.0	15	5	7.5	5	635	3-8
AMBER	3-5V	7.0	10.0	15	5	7.5	5	583	3-8
GREEN	5-5V	10.0	12.0	15	5	7.5	5	565	3-8
RED	1	30.0	20.0	35	2.0	3.0	5	635	3-9
AMBER	3	20.0	20.0	35	2.0	3.0	5	608	3-9
GREEN	5	30.0	20.0	30	2.2	3.0	5	562	3-9
YELLOW	7	25.0	20.0	35	2.1	3.0	5	585	3-9

AVAILABLE OPTIONS

LOW CURRENT

BUILT-IN RESISTOR 5 VOLTS

STANDARD MULTI-COLOR OPTION



CIRCUIT BOARD INDICATOR QUAD ASSEMBLY LED T-1³/₄ (5mm) BLOCK ASSEMBLY

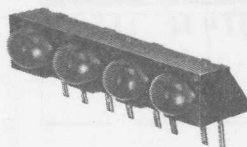
RED
AMBER
GREEN
YELLOW

SERIES 5640E, 5640H

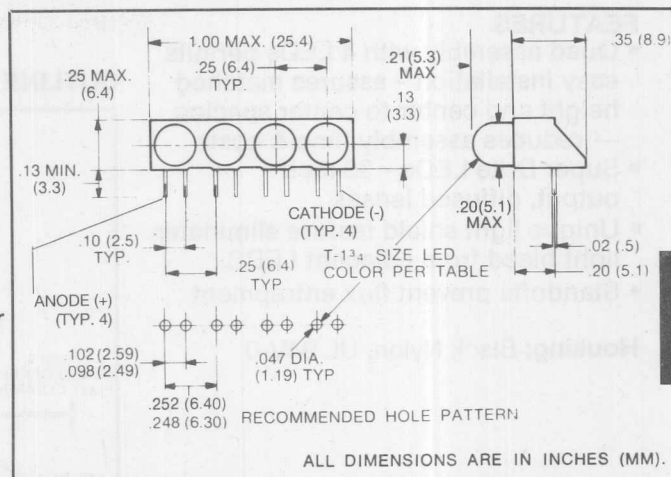
FEATURES

- Quad assembly with 4 LEDs permits easy installation - assures matched height and center to center spacing — reduces assembly time & costs
- Super Brite LEDs - 30 mcd output, diffused lenses
- High contrast ratio
- Low current - only 2 mA
- Built-in resistor chips - operate off 5 volt or 12 volt supply without external resistor
- Standoffs prevent flux entrapment

Housing: Black Nylon, UL 94V-0



OUTLINE DIMENSIONS



Alternate LEDs are also available in this package as standard variations.

The user who may have a requirement calling for various color/electrical specifications, a part number can be determined by referring to the chart shown below.

MODEL NO. IS AS FOLLOWS: 5640H _____ ; _____ ; _____ ; _____
LED 1 LED 2 LED 3 LED 4

When specifying all 4 LEDs of the same type —

EX: 4 each 5 volt red LEDs, the part number is **5640H1-5V**

When specifying a variety of colors —

EX: Position 1 is green; position 2 is red; position 3 is yellow; position 4 is red. All standard voltage. The part number is: **5640H 5;1;7;1**

NOTE: 5640E1 Model is a 4 position red LEDs assembly — economy priced. (H suffix is deleted.)

LED COLOR	LED CODE	INTENSITY TYP mcd	RATED CURRENT mA	FWD CURRENT MAX A	FWD VOLT TYP V	FWD VOLT MAX V	REVERSE VOLT MAX V	PEAK WAVE LENGTH nm	LED DATA SEE PAGE
RED	E1	3.0	20.0	100.0	1.7	2.2	5	660	3-4
RED	1	30.0	20.0	35.0	2.0	3.0	5	635	3-9
AMBER	3	20.0	20.0	35.0	2.0	3.0	5	608	3-9
GREEN	5	30.0	20.0	30.0	2.2	3.0	5	562	3-9
YELLOW	7	25.0	20.0	35.0	2.1	3.0	5	585	3-9
RED	1LC	2.0	2.0	7.0	1.8	2.7	5	635	3-5
GREEN	5LC	2.5	2.0	7.0	1.8	2.2	5	565	3-5
YELLOW	7LC	2.0	2.0	7.0	1.9	2.7	5	583	3-5
RED	1-5V	6.0	10.0	15.0	5.0	7.5	5	635	3-8
AMBER	3-5V	7.0	10.0	15.0	5.0	7.5	5	583	3-8
GREEN	5-5V	10.0	12.8	15.0	5.0	7.5	5	565	3-8
RED	1-12V	4.0	12.0	15.0	12.0	15.0	—	635	3-8

ECONOMY

STANDARD
OPTIONS

LOW
CURRENT
2mA

BUILT-IN
RESISTOR
5 VOLTS

12 VOLTS



CIRCUIT BOARD INDICATOR QUAD ASSEMBLY LED T-1³/₄ (5mm) BLOCK ASSEMBLY

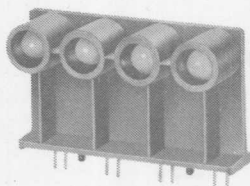
RED
GREEN
YELLOW

SERIES 5644H

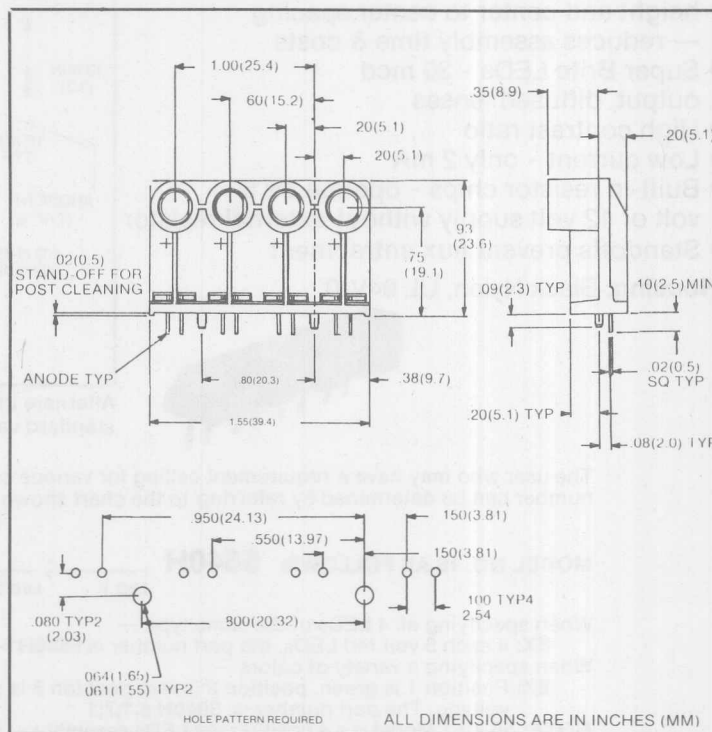
FEATURES

- Quad assembly with 4 LEDs permits easy installation - assures matched height and center to center spacing — reduces assembly time & costs
- Super Brite LEDs - 30 mcd output, diffused lenses
- Unique light shield feature eliminates light bleed from adjacent LEDs.
- Standoffs prevent flux entrapment

Housing: Black Nylon, UL 94V-0



OUTLINE DIMENSIONS



Alternate LEDs are also available in this package as standard variations.

SPECIFICATIONS	COLOR	TYPICAL INTENSITY	RATED CURRENT	FORWARD CURRENT—MAX.	FORWARD VOLTAGE MAX.	FORWARD VOLTAGE MAX.	REVERSE VOLTAGE MAX.	PEAK WAVE LENGTH	FOR MORE COMPLETE LED DATA
MODEL NO.		mcd	mA	A	V	V	V	nm	PAGE
5644H1	RED	120.	20.0	35.0	2.0	2.2	5	635	3-12
5644H5	GRN	120.	20.0	20.0	2.1	3.0	5	555	3-12
5644H7	YEL	120.	20.0	35.0	2.1	3.0	5	585	3-12



CIRCUIT BOARD INDICATOR

LED T-1¾ (5mm) FLAT LAMP ASSEMBLY

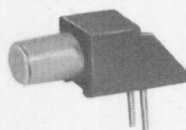
RED
GREEN
YELLOW

SERIES 5309K

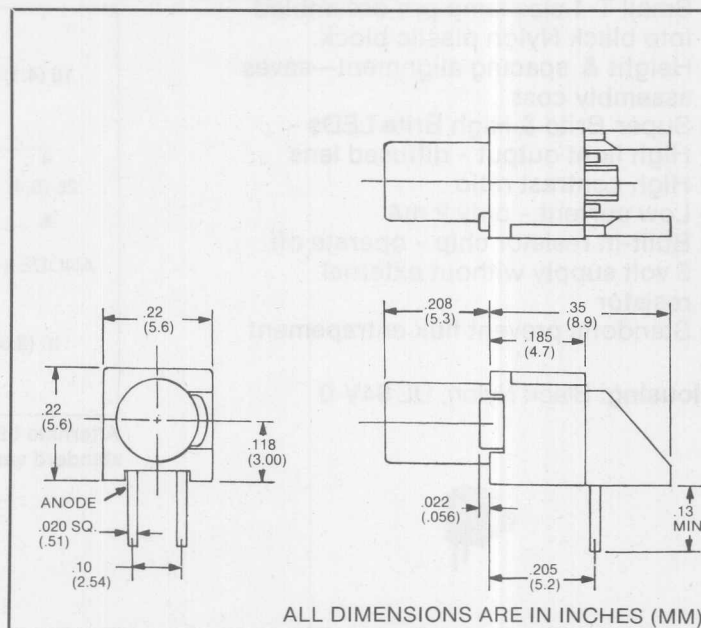
FEATURES

- Block mounting-height and spacing alignment - saves assembly cost
- High intensity light output
- Flat LED face gives even light distribution - ideal for rear legend lighting
- Standoff design prevents flux entrapment

HOUSING: High contrast black nylon rated UL 94V-O



OUTLINE DIMENSIONS



SPECIFICATIONS	COLOR	TYPICAL INTENSITY	RATED CURRENT	CONTINUOUS FORWARD CURRENT-MAX	FORWARD VOLTAGE TYP.	PEAK FORWARD CURRENT AT 1ms-300 PPS	REVERSE BREAKDOWN VOLTAGE MIN.	PEAK WAVE LENGTH	FOR MORE COMPLETE LED DATA
MODEL NO.		mcd	mA	mA	V	A	V	nm	PAGE
5309K1	RED	10.0	20	25	2.2	—	5	635	3-30
5309K5	GRN	7.0	20	20	2.3	—	5	565	3-30
5309K7	YEL	7.0	20	25	2.2	—	5	583	3-30



MINIATURE CIRCUIT BOARD INDICATOR LED T-1 (3 mm) BLOCK ASSEMBLY

RED
AMBER
GREEN
YELLOW

SERIES 5600F, 5602F

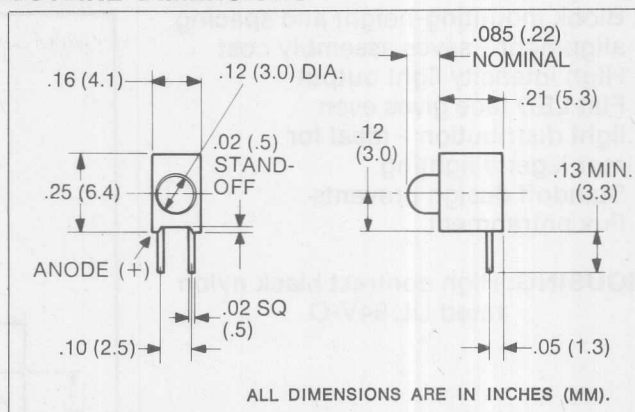
FEATURES

- Small T-1 size lamp pre-assembled into black Nylon plastic block.
- Height & spacing alignment—saves assembly cost
- Super Brite & High Brite LEDs - High light output - diffused lens
- High contrast ratio
- Low current - only 2 mA
- Built-in resistor chip - operate off 5 volt supply without external resistor
- Standoffs prevent flux entrapment

Housing: Black Nylon, UL 94V-0



OUTLINE DIMENSIONS



Alternate LEDs are also available in this package as standard variations.

SPECIFICATIONS	COLOR	TYPICAL INTENSITY	RATED CURRENT	CONTINUOUS FORWARD CURRENT-MAX	FORWARD VOLTAGE TYP.	FORWARD VOLTAGE MAX.	PEAK FORWARD CURRENT AT 1 Ms-300PPS	REVERSE BREAKDOWN VOLTAGE MIN.	PEAK WAVE LENGTH	FOR MORE COMPLETE LED DATA
MODEL NO.		mcd	mA	mA	V	V	A	V	nm	PAGE
5600F1	RED	6.0	10.0	30	2.0	3.0	1.0	5	635	3-19
5600F3	AMB	5.0	10.0	25	2.0	3.0	.09	5	603	3-19
5600F5	GRN	12.0	20.0	30	2.2	3.0	.09	5	562	3-19
5600F7	YEL	20.0	20.0	30	2.1	3.0	1.0	5	585	3-19
5600F1LC	RED	1.8	2.0	7	1.8	2.2	.007	5	635	3-16
5600F5LC	GRN	1.8	1.0	7	1.8	2.2	.007	5	565	3-16
5600F7LC	YEL	1.6	2.0	7	1.9	2.7	.007	5	585	3-16
5602F1-5V	RED	8.0	10.0	15	5	7.5	—	5	635	3-18
5602F3-5V	AMB	8.0	10.0	15	5	7.5	—	5	583	3-18
5602F5-5V	GRN	8.0	12.0	15	5	7.5	—	5	565	3-18

LOW
CURRENT
RESISTOR
BUILT-IN
5 VOLTS



MINIATURE CIRCUIT BOARD INDICATOR

SUPER BRITE 65 mcd
LED T-1 (3 mm) BLOCK ASSEMBLY

RED
GREEN
YELLOW

SERIES 5608F

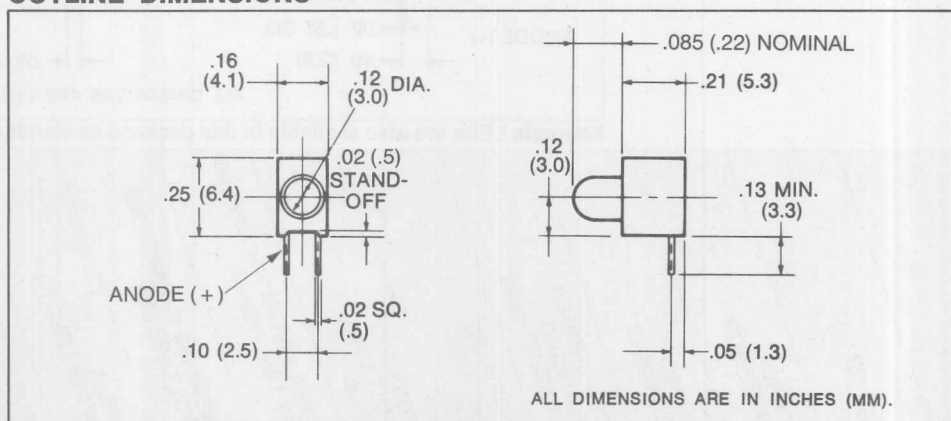
FEATURES

- T-1 size right angle block preassembled & tested
- Super Brite 65 mcd high light output—clear non-diffused lens
- Standoffs prevent flux entrapment



Housing: Black Nylon, UL 94V-0

OUTLINE DIMENSIONS





MINIATURE CIRCUIT BOARD INDICATOR LED T-1 (3 mm) BLOCK ASSEMBLY

RED
AMBER
GREEN
YELLOW
BLUE

SERIES 5650F, 5652F

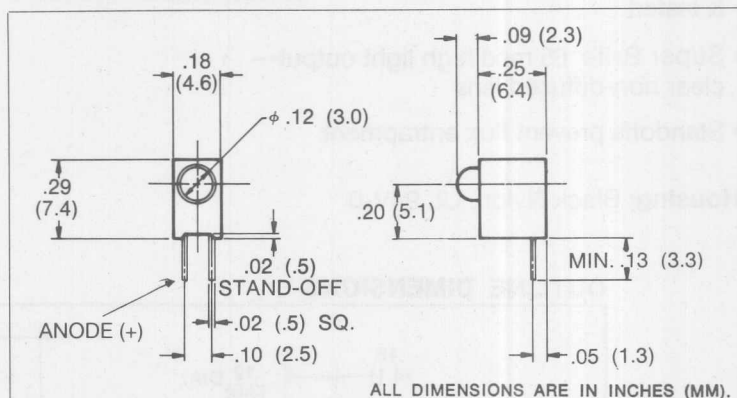
FEATURES

- T-1 size right angle block pre assembled & tested
- Super Brite & High Brite LEDs - High light output - diffused lens

Housing: Black Nylon, UL 94V-0



OUTLINE DIMENSIONS



Alternate LEDs are also available in this package as standard variations.

SPECIFICATIONS	COLOR	TYPICAL INTENSITY	RATED CURRENT	CONTINUOUS FORWARD CURRENT - MAX	FORWARD VOLTAGE TYP.	FORWARD VOLTAGE MAX.	PEAK FORWARD CURRENT AT 1 Ms-300PPS	REVERSE BREAKDOWN VOLTAGE MIN.	PEAK WAVE LENGTH	FOR MORE COMPLETE LED DATA
MODEL NO.		mcd	mA	mA	V	V	A	V	nm	PAGE
5650F1	RED	6.0	10	30	2.0	3.0	1.0	5	635	3-19
5650F3	AMB	5.0	10	25	2.0	3.0	.08	5	603	3-19
5650F5	GRN	12.0	20	30	2.2	3.0	.09	5	562	3-19
5650F6	BLUE	1.3	30	35	3.2	3.5	—	5	470	3-19
5650F7	YEL	20.0	20	30	2.1	3.0	1.0	5	585	3-19
5650F1LC	RED	1.8	2.0	7	1.8	2.2	.007	5	635	3-16
5650F5LC	GRN	1.6	1.0	7	1.8	2.2	.007	5	565	3-16
5650F7LC	YEL	1.8	2.0	7	1.9	2.7	.007	5	583	3-16
5652F1-5V	RED	8.0	13.0	20	5	7.5	—	3	655	3-18
5652F3-5V	AMB	8.0	10.0	15	5	7.5	—	3	583	3-18
5652F5-5V	GRN	8.0	12.0	15	5	7.5	—	3	565	3-18

LOW
CURRENT
BUILT-IN
RESISTOR
5 VOLTS



CIRCUIT BOARD INDICATORS

SUPER BRITE LEDs TAPE AND REEL

LED T-1 (3mm) RIGHT ANGLE BLOCK ASSEMBLY

RED
AMBER
GREEN
YELLOW

SERIES 5655F

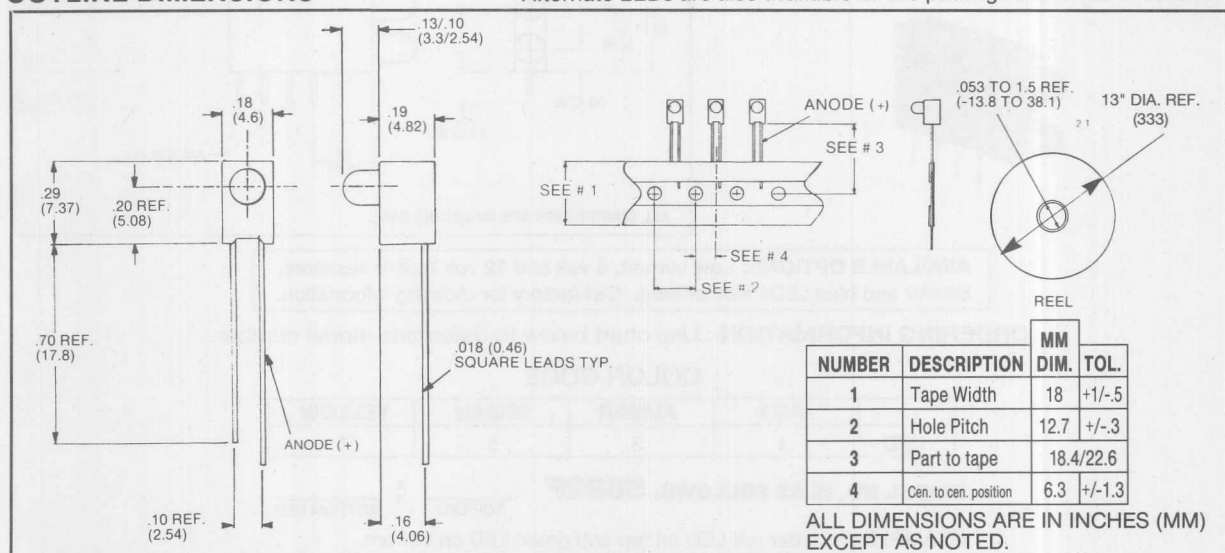
FEATURES

- Tape and reel for automatic assembly to PC boards - meets EIA STD RS - 468
- T-1 size lamp - pre-assembled into plastic block, height and spacing alignment saves assembly time/costs
- High contrast ratio
- Standoffs prevent flux entrapments
- Standard reel quantity 750 Pcs.

HOUSING: Black plastic, meets UL 94V-0

OUTLINE DIMENSIONS

Alternate LEDs are also available in this package as standard variations.



SPECIFICATIONS	COLOR	TYPICAL INTENSITY	RATED CURRENT	CONTINUOUS FORWARD CURRENT-MAX.	FORWARD VOLTAGE TYP.	FORWARD VOLTAGE MAX.	PEAK FORWARD CURRENT AT 1 ms - 300 PPS	REVERSE BREAKDOWN VOLTAGE MIN.	PEAK WAVE LENGTH	FOR MORE COMPLETE LED DATA
MODEL NO.		mcd	mA	mA	A	V	V	V	nm	PAGE
5655F1	RED	6	10	30	2.0	3.0	1.0	5	635	3-19
5655F3	AMB	4	10	30	2.2	3.0	.5	5	603	3-19
5655F5	GRN	12	20	30	2.2	3.0	.09	5	562	3-19
5655F7	YEL	20	20	30	2.1	3.0	1.0	5	585	3-19



PC BOARD MOUNT DUAL T-1 LEDs

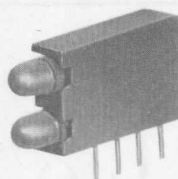
HIGH DENSITY - RIGHT ANGLE MOUNTING

RED
AMBER
GREEN
YELLOW

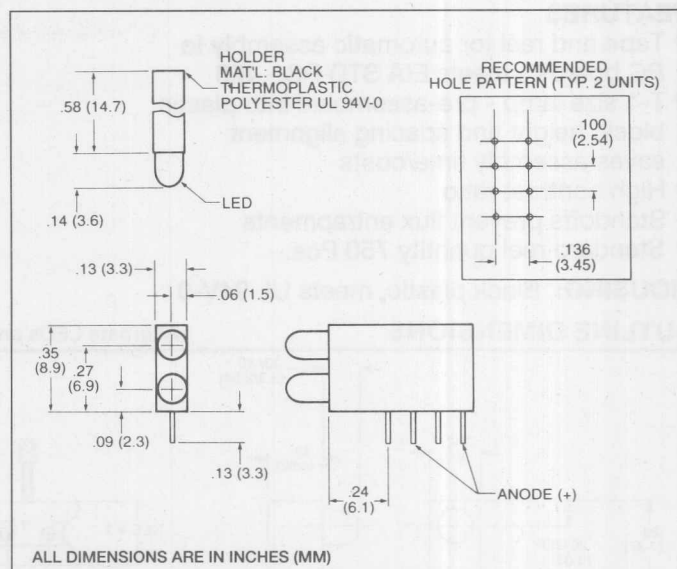
SERIES 5682F

FEATURES

- 2 T-1 LEDs mounted in single block saves space and assembly time.
- High density—only 0.13 wide
- Black plastic mounting block for high contrast ratio.
- Meets UL 94V-0 and Bellcore flammability specifications.



OUTLINE DIMENSIONS



AVAILABLE OPTIONS: Low current, 5 volt and 12 volt built-in resistors, bicolor and blue LEDs also offered. Call factory for ordering information.

ORDERING INFORMATION : Use chart below to determine model number.

COLOR CODE

	RED	AMBER	GREEN	YELLOW
LED	1	3	5	7

MODEL NO. IS AS FOLLOWS: 5682F ; TOP LED ; BOTTOM LED

EXAMPLE: To order red LED on top and green LED on bottom.
The part number would be: **5682F1;5**

LED COLOR CODE	COLOR	TYPICAL INTENSITY	RATED CURRENT	CONTINUOUS FORWARD	FORWARD VOLTAGE	FORWARD VOLTAGE	REVERSE BREAKDOWN VOLTAGE MIN.	PEAK WAVE LENGTH
NO.		mcd	mA	mA	V	V	V	nm
1	RED	10.0	10	25	2.2	3.0	5.0	635
3	AMB	6.5	10	25	2.2	3.0	5.0	602
5	GRN	8.5	10	25	2.3	3.0	5.0	565
7	YEL	10.0	10	20	2.2	3.0	5.0	583

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PC BOARD QUAD ARRAY- T-1 LEDs

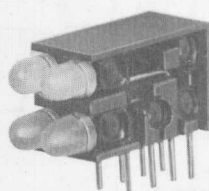
HIGH DENSITY—RIGHT ANGLE MOUNTING

RED
AMBER
GREEN
YELLOW

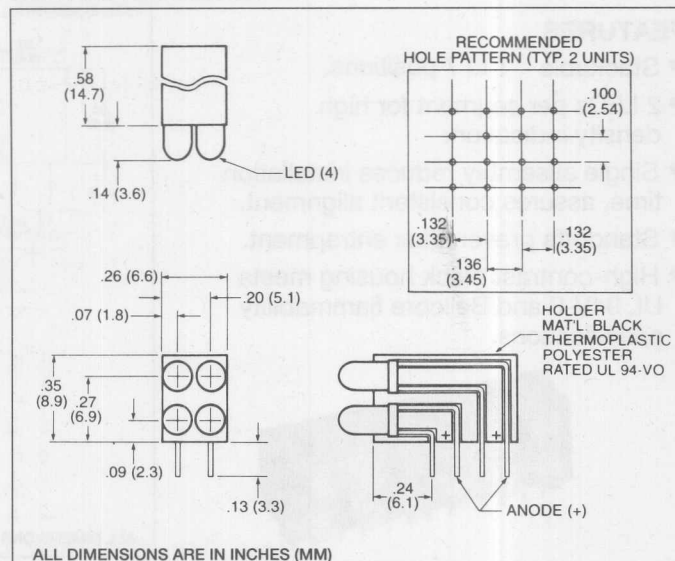
SERIES 5684F

FEATURES

- 4 T-1 LEDs mounted in single block
- High density—only 0.26 wide
- Black plastic mounting block for high-contrast ratio.
- Meets UL 94V-0 and Bellcore flammability specifications.

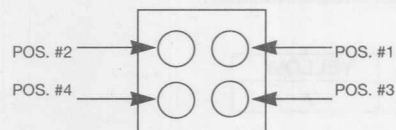


OUTLINE DIMENSIONS



AVAILABLE OPTIONS: Low current, 5 volt and 12 volt built-in resistors, bicolor and blue LEDs also offered. Call factory for ordering information.

ORDERING INFORMATION : Use chart below to determine model number.



COLOR CODE

	RED	AMBER	GREEN	YELLOW
LED	1	3	5	7

MODEL NO. IS AS FOLLOWS: 5684F

POS. #1 ; POS. #2 ; POS. #3 ; POS. #4

EXAMPLE: Positions 1 & 2 are red, position 3 is green position 4 is yellow.
The part number would be: **5684F1;1;5;7**

LED COLOR CODE	COLOR	TYPICAL INTENSITY	RATED CURRENT	CONTINUOUS FORWARD CURRENT-MAX.	FORWARD VOLTAGE TYP.	FORWARD VOLTAGE MAX.	REVERSE BREAKDOWN VOLTAGE MIN.	PEAK WAVE LENGTH
NO.		mcd	mA	mA	V	V	V	nm
1	RED	10.0	10	25	2.2	3.0	5.0	635
3	AMB	6.5	10	25	2.2	3.0	5.0	602
5	GRN	8.5	10	25	2.3	3.0	5.0	565
7	YEL	10.0	10	20	2.2	3.0	5.0	583

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MULTIPOSITION LED ARRAYS

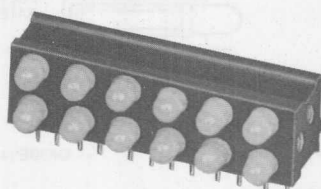
DUAL -MOUNTED T-1 (3mm) — 1 TO 7 POSITIONS

RED
AMBER
GREEN
YELLOW

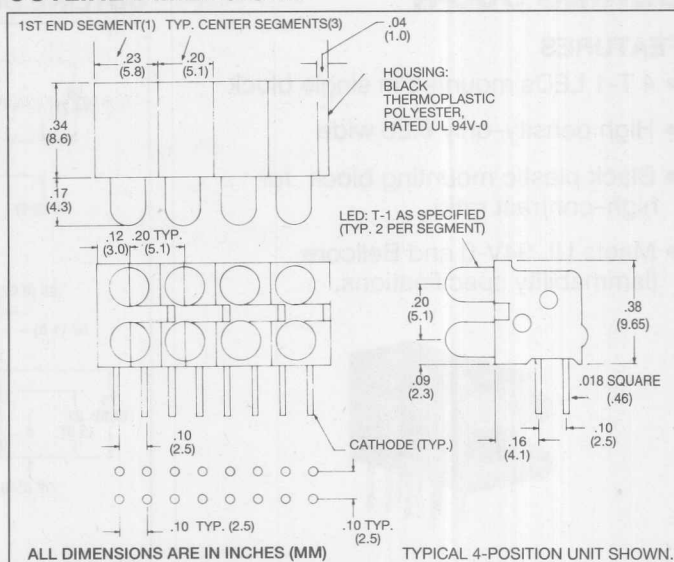
SERIES 5690F

FEATURES

- Stackable - 1 to 7 positions.
- 2 LEDs per segment for high density indication.
- Single assembly reduces installation time, assures consistent alignment.
- Standoffs prevent flux entrapment.
- High-contrast black housing meets UL 94V-0 and Bellcore flammability specifications.



OUTLINE DIMENSIONS



AVAILABLE OPTIONS: Low current, 5 volt and 12 volt built-in resistors, bicolor and blue LEDs also offered. Call factory for ordering information.

ORDERING INFORMATION : Use chart below to determine model number. When ordering more than 4 positions, please call factory for model number.

COLOR CODE

	RED	AMBER	GREEN	YELLOW
LED	1	3	5	7

MODEL NO. IS AS FOLLOWS: 5690F

TOP BOTTOM TOP BOTTOM TOP BOTTOM TOP BOTTOM
POS. #1 POS. #2 POS. #3 POS. #4

EXAMPLE: Top LEDs all green, bottom LEDs (left to right) are green, yellow, amber or red.

The part number would be: **5690F55-57-53-51**

LED COLOR CODE	COLOR	TYPICAL INTENSITY	RATED CURRENT	CONTINUOUS FORWARD CURRENT-MAX.	FORWARD VOLTAGE TYP.	FORWARD VOLTAGE MAX.	REVERSE BREAKDOWN VOLTAGE MIN.	PEAK WAVE LENGTH
NO.		mcd	mA	mA	V	V	V	nm
1	RED	10.0	10	25	2.2	3.0	5.0	635
3	AMB	6.5	10	25	2.2	3.0	5.0	602
5	GRN	8.5	10	25	2.3	3.0	5.0	565
7	YEL	10.0	10	20	2.2	3.0	5.0	583

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PC BOARD, 3-UP T-1 LEDs

HIGH DENSITY - RIGHT ANGLE MOUNTING

RED
AMBER
GREEN
YELLOW

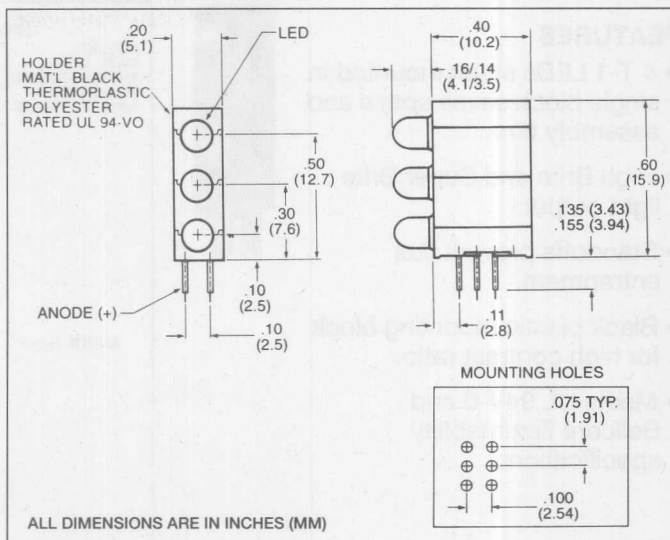
SERIES 5693F

FEATURES

- 3 T-1 LEDs stack mounted in single block saves space and assembly time.
- High Brite and Super Brite light output.
- Standoffs prevent flux entrapment.
- Black plastic mounting block for high contrast ratio.
- Meets UL 94V-0 and Bellcore flammability specifications.



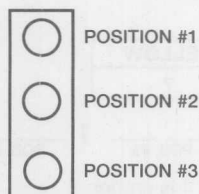
OUTLINE DIMENSIONS



AVAILABLE OPTIONS: Low current, 5 volt and 12 volt built-in resistors, bicolor and blue LEDs also offered. Call factory for ordering information.

ORDERING INFORMATION : Use chart below to determine model number.

COLOR CODE



	RED	AMBER	GREEN	YELLOW
LED	1	3	5	7

MODEL NO. IS AS FOLLOWS: 5693F

POS. #1 ; POS. #2 ; POS. #3

EXAMPLE: Position 1 is red, position 2 is yellow, position 3 is green.
The part number is: **5693F1;7;5**

LED COLOR CODE	COLOR	TYPICAL INTENSITY	RATED CURRENT	CONTINUOUS FORWARD CURRENT-MAX.	FORWARD VOLTAGE TYP.	FORWARD VOLTAGE MAX.	REVERSE BREAKDOWN VOLTAGE MIN.	PEAK WAVE LENGTH
NO.		mcd	mA	mA	V	V	V	nm
1	RED	10.0	10	25	2.2	3.0	5.0	635
3	AMB	6.5	10	25	2.2	3.0	5.0	602
5	GRN	8.5	10	25	2.3	3.0	5.0	565
7	YEL	10.0	10	20	2.2	3.0	5.0	583

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PC BOARD, 4-UP T-1 LEDs

HIGH DENSITY - RIGHT ANGLE MOUNTING

RED
AMBER
GREEN
YELLOW

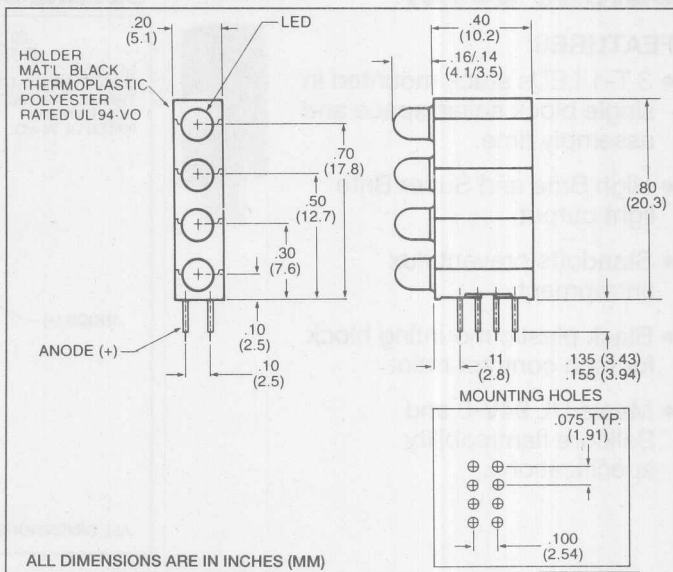
SERIES 5694F

FEATURES

- 4 T-1 LEDs stack mounted in single block saves space and assembly time.
- High Brite and Super Brite light output.
- Standoffs prevent flux entrapment.
- Black plastic mounting block for high contrast ratio.
- Meets UL 94V-0 and Bellcore flammability specifications.



OUTLINE DIMENSIONS



AVAILABLE OPTIONS: Low current, 5 volt and 12 volt built-in resistors, bicolor and blue LEDs also offered. Call factory for ordering information.

ORDERING INFORMATION : Use chart below to determine model number.

COLOR CODE

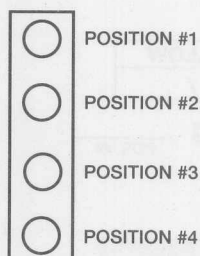
	RED	AMBER	GREEN	YELLOW
LED	1	3	5	7

MODEL NO. IS AS FOLLOWS: 5694F

POS. #1 ; POS. #2 ; POS. #3 ; POS. #4

EXAMPLE: Position 1 is green, position 2 is red, position 3 is yellow, position 4 is amber.

The part number is: **5694F5;1;7;3**



LED COLOR CODE	COLOR	TYPICAL INTENSITY	RATED CURRENT	CONTINUOUS FORWARD CURRENT-MAX.	FORWARD VOLTAGE TYP.	FORWARD VOLTAGE MAX.	REVERSE BREAKDOWN VOLTAGE MIN.	PEAK WAVE LENGTH
NO.		mcd	mA	mA	V	V	V	nm
1	RED	10.0	10	25	2.2	3.0	5.0	635
3	AMB	6.5	10	25	2.2	3.0	5.0	602
5	GRN	8.5	10	25	2.3	3.0	5.0	565
7	YEL	10.0	10	20	2.2	3.0	5.0	583

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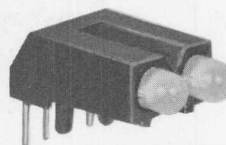
MINIATURE CIRCUIT BOARD INDICATOR DUAL MOUNTED LED T-1 (3mm) BLOCK ASSEMBLY

RED/RED
GRN/GRN
YEL/YEL

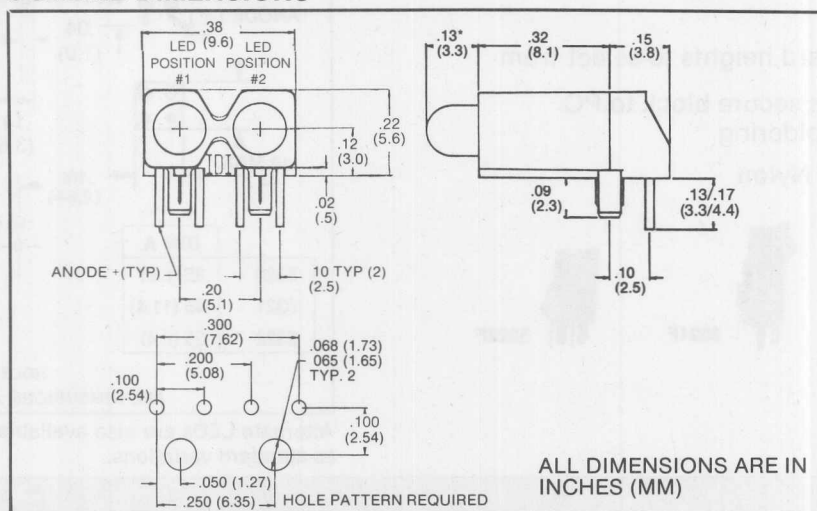
SERIES 5365F

FEATURES

- 2 T-1 LEDs mounted in single block
- Height & spacing alignment saves assembly cost
- Black Nylon block UL 94 V-O



OUTLINE DIMENSIONS



Alternate LEDs available upon request.

SPECIFICATIONS	COLOR	TYPICAL INTENSITY	RATED CURRENT	CONTINUOUS FORWARD CURRENT	FORWARD VOLTAGE TYP.	FORWARD VOLTAGE MAX.	PEAK FORWARD CURRENT AT 1ms-300 PPS	REVERSE BREAKDOWN VOLTAGE MIN.	PEAK WAVE LENGTH	FOR MORE COMPLETE LED DATA
MODEL NO.		mcd	mA	mA	V	V	A	V	nm	PAGE
5365F1;1	RED/RED	6.0	10	30	2.0	3.0	1.0	5	635	3-19
5365F5;5	GRN/GRN	12.0	20	30	2.2	3.0	.09	5	562	3-19
5365F7;7	YEL/YEL	20.0	20	30	2.1	3.0	1.0	5	585	3-19



MINIATURE CIRCUIT BOARD INDICATORS VARIABLE HEIGHTS LED T-1 (3mm) BLOCK ASSEMBLIES

RED
GREEN
YELLOW

SERIES 5320F, 5321F, 5322F

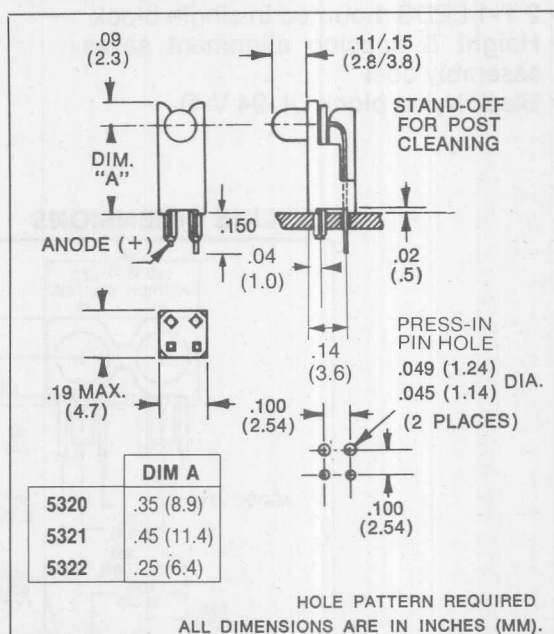
FEATURES

- T-1 LED lamp right angle mounted, preassembled & tested
- Black Nylon block, high contrast ratio, height & spacing alignment—saves assembly costs
- High Brite & Super Brite LEDs - diffused lens
- 3 different board heights to select from
- Mounting pins secure block to PC board while soldering

Housing: Black Nylon



OUTLINE DIMENSIONS



Alternate LEDs are also available in this package as standard variations.

SPECIFICATIONS	COLOR	TYPICAL INTENSITY	RATED CURRENT	CONTINUOUS FORWARD CURRENT-MAX	FORWARD VOLTAGE TYP.	FORWARD VOLTAGE MAX	PEAK FORWARD CURRENT AT 1 Ms-300PPS	REVERSE BREAKDOWN VOLTAGE MIN	PEAK WAVE LENGTH	FOR MORE COMPLETE LED DATA
MODEL NO.		mcd	mA	mA	V	V	A	V	nm	PAGE
5322F1	RED	6.0	10	30	2.0	3.0	1.0	5	635	3-19
5322F5	GRN	12.0	20	30	2.2	3.0	.09	5	562	3-19
5322F7	YEL	20.0	20	30	2.1	3.0	1.0	5	585	3-19
5320F1	RED	6.0	10	30	2.0	3.0	1.0	5	635	3-19
5320F5	GRN	12.0	20	30	2.2	3.0	.09	5	562	3-19
5320F7	YEL	20.0	20	30	2.1	3.0	1.0	5	585	3-19
5321F1	RED	6.0	10	30	2.0	3.0	1.0	5	635	3-19
5321F5	GRN	12.0	20	30	2.2	3.0	.09	5	562	3-19
5321F7	YEL	20.0	20	30	2.1	3.0	1.0	5	585	3-19



MINIATURE CIRCUIT BOARD INDICATOR LED T-1 (3 mm) BLOCK ASSEMBLY

RED
GREEN
YELLOW

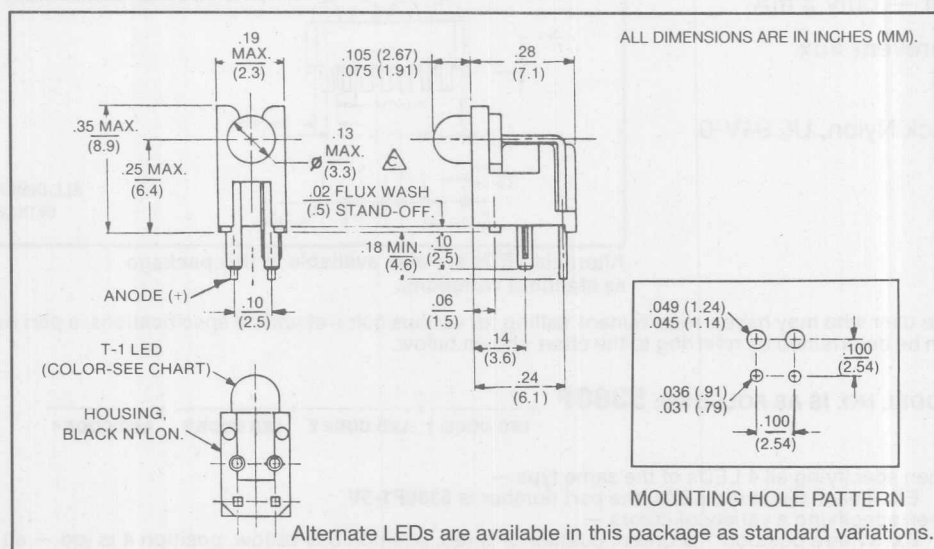
SERIES 5323F

FEATURES

- T-1 LED lamp right angle mounted, pre-assembled and tested
- Black Nylon block, high contrast ratio, height & spacing alignment - saves assembly cost
- High Brite & Super Brite LEDs - diffused
- Mounting pins secure block to PC board while soldering



OUTLINE DIMENSIONS



FOR COMPLETE LED SPECIFICATIONS SEE PAGE 3-19

SPECIFICATIONS	COLOR	TYPICAL INTENSITY	RATED CURRENT	CONTINUOUS FORWARD CURRENT-MAX	FORWARD VOLTAGE TYP.	FORWARD VOLTAGE MAX.	PEAK FORWARD CURRENT AT 1ms-300 PPS	REVERSE BREAKDOWN VOLTAGE MIN.	PEAK WAVE LENGTH
MODEL NO.		mcd	mA	mA	V	V	A	V	nm
5323F1	RED	6	10	30	2.0	3.0	1.6	5	635
5323F5	GRN	12	20	30	2.2	3.0	.09	5	562
5323F7	YEL	20	20	30	2.1	3.0	1.0	5	583



MINIATURE CIRCUIT BOARD INDICATOR QUAD ASSEMBLY LED T-1 (3 mm) BLOCK ASSEMBLY

RED
AMBER
GREEN
YELLOW

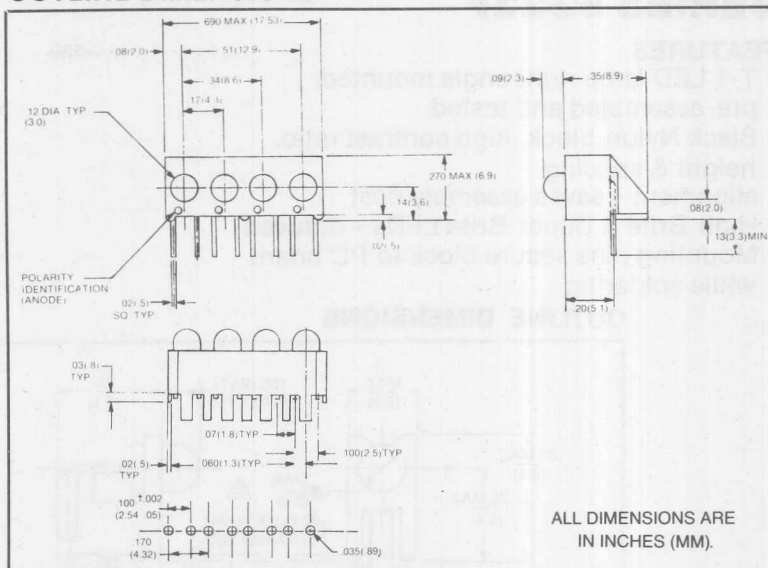
SERIES 5360F

FEATURES

- Quad assembly with 4 T-1 LEDs permits easy installation — assures matched height & center to center spacing — reduces assembly time & costs
- High Brite & Super Brite LEDs—high light output, diffused lens
- Low current — only 2 mA
- Standoffs prevent flux entrapment

Housing: Black Nylon, UL 94V-0

OUTLINE DIMENSIONS



Alternate LEDs are also available in this package as standard variations.

The user who may have a requirement calling for various color/electrical specifications, a part number can be determined by referring to the chart shown below.

MODEL NO. IS AS FOLLOWS: **5360F** ; ; ;
LED CODE: 1 LED CODE 2 LED CODE 3 LED CODE 4

When specifying all 4 LEDs of the same type —

EX: 4 each 5 volt red LEDs, the part number is **5360F1-5V**

When specifying a variety of colors —

EX: Where position 1 is green, position 2 is red, position 3 is yellow, position 4 is red — all standard voltage. The part number is: **5360F 5;1;7;1**

LED COLOR	LED CODE	INTENSITY TYP mcd	RATED CURRENT mA	FWD CURRENT MAX A	FWD VOLT TYP V	FWD VOLT MAX V	REVERSE VOLT MAX V	PEAK WAVE LENGTH nm	FOR MORE COMPLETE LED DATA
									PAGE
RED	1	6.0	10.0	30	2.0	3.0	5	635	3-19
AMBER	3	5.0	10.0	25	2.0	3.0	5	603	3-19
GREEN	5	12.0	20.0	30	2.2	3.0	5	562	3-19
YELLOW	7	20.0	20.0	30	2.1	3.0	5	585	3-19
RED	1LC	1.8	2.0	7	1.8	5	5	635	3-22
GREEN	5LC	1.6	1.0	7	1.8	2.2	5	565	3-22
YELLOW	7LC	1.8	2.0	7	1.9	2.7	5	585	3-22
RED	1-5V	8.0	13.0	20	5.0	7.5	5	655	3-23
AMBER	3-5V	8.0	10.0	15	5.0	7.5	5	583	3-23
GREEN	5-5V	8.0	12.0	15	5.0	7.5	5	565	3-23

STANDARD

LOW
CURRENT

BUILT-IN
RESISTOR
5 VOLTS

MINIATURE CIRCUIT BOARD INDICATOR

DUAL MOUNTED LED T-1 (3 mm) BLOCK ASSEMBLY

RED/RED
AMB/AMB
GRN/GRN
YEL/YEL

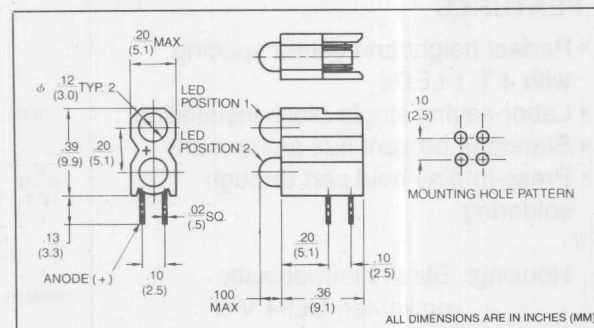
SERIES 5680F

FEATURES

- 2 T-1 LEDs mounted in single block
- Less PC board space needed, height & spacing alignment saves assembly cost
- Black Nylon plastic block
- High Brite & Super Brite LEDs- diffused lens
- Standoffs prevent flux entrapment



OUTLINE DIMENSIONS



Alternate LEDs are also available in this package as standard variations

SPECIFICATIONS	COLOR	TYPICAL INTENSITY	RATED CURRENT	CONTINUOUS FORWARD CURRENT	CONTINUOUS FORWARD CURRENT-MAX	FORWARD VOLTAGE TYP.	FORWARD VOLTAGE MAX	PEAK FORWARD CURRENT AT 1 Ms-300PPS	REVERSE BREAKDOWN VOLTAGE MIN.	PEAK WAVE LENGTH	FOR MORE COMPLETE LED DATA	STANDARD OPTIONS
MODEL NO.		mcd	mA	mA	V	V	A	V	nm	PAGE		
5680F1;1	RED/RED	6.0	10	30	2.0	3.0	1.0	5	635	3-19		
5680F3;3	AMB/AMB	5.0	10	25	2.0	3.0	.09	5	603	3-19		
5680F5;5	GRN/GRN	12.0	20	30	2.2	3.0	.09	5	562	3-19		
5680F7;7	YEL/YEL	20.0	20	30	2.1	3.0	1.0	5	585	3-19		

The model numbers listed above are standard off the shelf parts, for the user who may have a requirement calling for various color/electrical specifications, a part number can be determined by referring to the chart shown below.

MODEL NO. IS AS FOLLOWS: **5680F**

LED 1	LED 2
0	0
1	1
2	2
3	3
4	4
5	5
6	6
7	7
8	8
9	9
10	10
11	11
12	12
13	13
14	14
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87	87
88	88
89	89
90	90
91	91
92	92
93	93
94	94
95	95
96	96
97	97
98	98
99	99

LED COLOR	LED CODE	INTENSITY TYP mcd	RATED CURRENT mA	FWD CURRENT MAX V	FWD VOLT TYP V	FWD VOLT MAX A	REVERSE VOLT MAX V	PEAK WAVE LENGTH nm	LED DATA SEE PAGE	LOW CURRENT
RED	1LC	1.8	2.0	1.8	2.2	5	5	635	3-16	
GREEN	5LC	1.6	1.0	7	1.8	2.2	5	565	3-16	
YELLOW	7LC	1.8	2.0	7	1.9	2.7	5	583	3-16	BUILT-IN RESISTOR 5 VOLTS
RED	1-5V	8.0	13	20	5.0	7.5	5	655	3-18	
AMBER	3-5V	8.0	10	15	5.0	7.5	5	583	3-18	
GREEN	5-5V	8.0	12	15	5.0	7.5	5	565	3-18	STANDARD MULTI- COLOR OPTION
RED	1	6.0	10	30	2.0	3.0	5	635	3-19	
AMBER	3	5.0	10	25	2.0	3.0	5	603	3-19	
GREEN	5	12.0	20	30	2.2	3.0	5	562	3-19	
YELLOW	7	20.0	20	30	2.1	3.0	5	585	3-19	

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MINIATURE CIRCUIT BOARD INDICATOR

QUAD ASSEMBLY LED T-1 (3mm) BLOCK ASSEMBLY

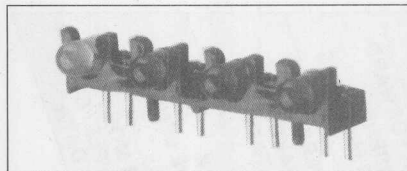
RED
AMBER
GREEN
YELLOW

SERIES 5324F

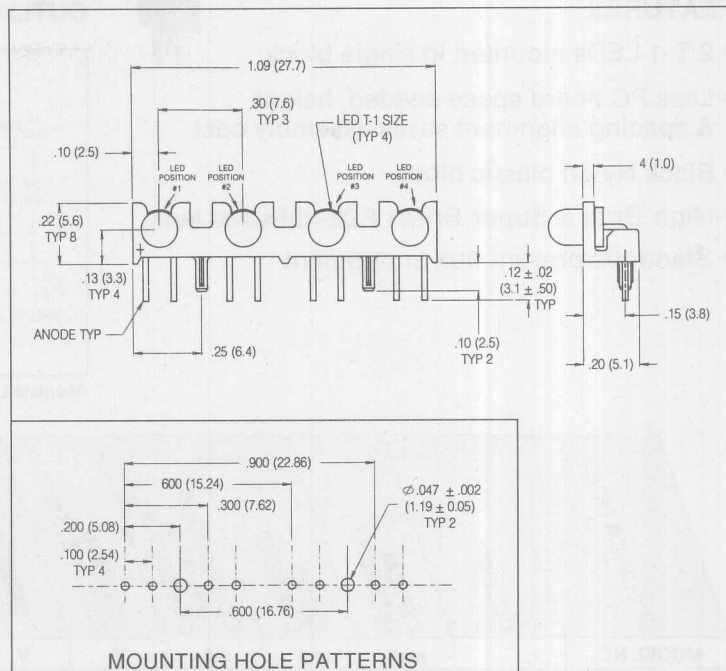
FEATURES

- Perfect height and center spacing with 4 T-1 LEDs
- Labor-saving single-block installation
- Standoffs prevent flux entrapment
- Press-in-pins hold part through soldering

Housing: Black thermoplastic polyester, UL94 V-0



OUTLINE DIMENSIONS



MOUNTING HOLE PATTERNS

MODEL NO.	COLOR	TYPICAL INTENSITY	RATED CURRENT	CONTINUOUS FORWARD CURRENT (MAX.)	FORWARD VOLTAGE (TYP.)	FORWARD VOLTAGE-MAX.	REVERSE BREAKDOWN VOLTAGE-MIN.	PEAK WAVE LENGTH	FOR MORE COMPLETE LED DATA
5324F1	Red	6 mcd	10 mA	30 mA	2.0 V	3.0 V	5 V	635 nm	3-19
5324F3	Amber	4 mcd	10 mA	30 mA	2.2 V	3.0 V	5 V	603 nm	3-19
5324F5	Green	12 mcd	20 mA	30 mA	2.2 V	3.0 V	5 V	562 nm	3-19
5324F7	Yellow	20 mcd	20 mA	30 mA	2.1 V	3.0 V	5 V	585 nm	3-19

ALTERNATE LEDs + MIXED COLOR ARRAYS ARE AVAILABLE IN THIS PACKAGE AS STANDARD VARIATIONS



MINIATURE CIRCUIT BOARD INDICATOR

SIX-LED T-1 (3mm) BLOCK ASSEMBLY

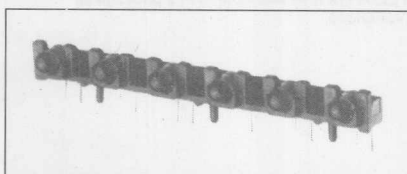
RED

MODEL 5326F1

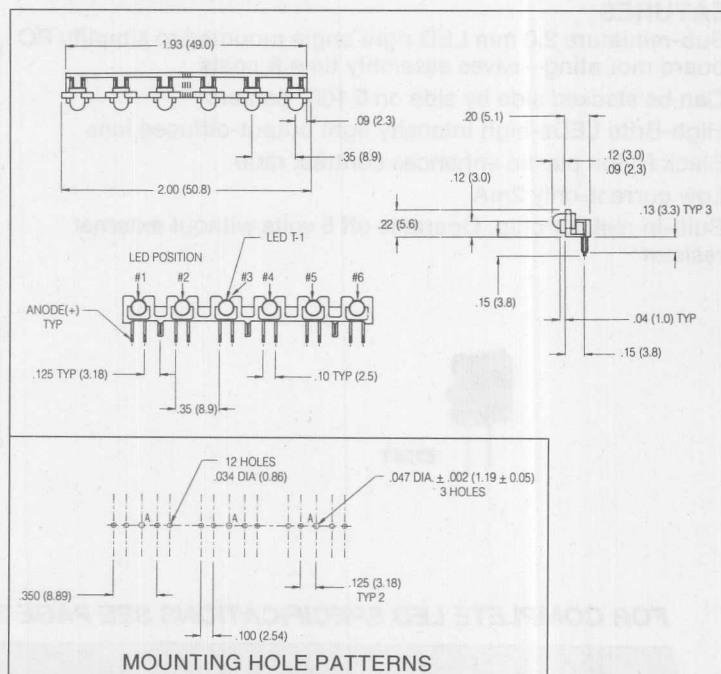
FEATURES

- Perfect height and center spacing with 6 T-1 LEDs
- Labor-saving single-block installation
- Standoffs prevent flux entrapment
- Press-in-pins hold part through soldering
- Compact— only 5.6 mm high

Housing: Black thermoplastic polyester, UL94 V-0



OUTLINE DIMENSIONS



MODEL NO.	COLOR	TYPICAL INTENSITY	RATED CURRENT	CONTINUOUS FORWARD CURRENT (MAX.)	FORWARD VOLTAGE (TYP.)	FORWARD VOLTAGE-MAX.	REVERSE BREAKDOWN VOLTAGE-MIN.	PEAK WAVE LENGTH	FOR MORE COMPLETE LED DATA
5326F1	Red	6 mcd	10 mA	30 mA	2.0 V	3.0 V	5 V	635 nm	3-19

ALTERNATE LEDs + MIXED COLOR ARRAYS ARE AVAILABLE IN THIS PACKAGE AS STANDARD VARIATIONS

SERIES 5350T, 5352T

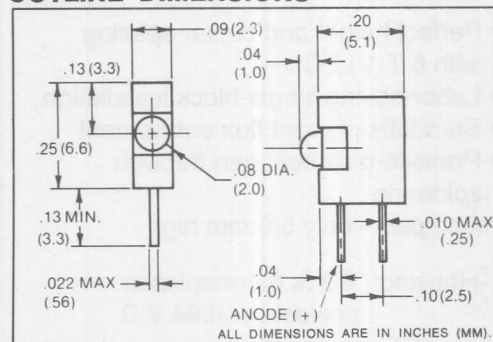
FEATURES

- Sub-miniature 2.0 mm LED right angle mounted to simplify PC board mounting—saves assembly time & costs
- Can be stacked side by side on 0.100" centers
- High-Brite LEDs—high intensity light output—diffused lens
- Black Nylon plastic enhances contrast ratio
- Low current—only 2mA
- Built-in resistor chip. Operates off 5 volts without external resistor



5350T

OUTLINE DIMENSIONS



Alternate LEDs are also available in this package as standard variations.

FOR COMPLETE LED SPECIFICATIONS SEE PAGE 3- 22, 3-23, 3-24, 3-25

SPECIFICATIONS	COLOR	TYPICAL INTENSITY	RATED CURRENT	CONTINUOUS FORWARD CURRENT-MAX	FORWARD VOLTAGE TYP.	FORWARD VOLTAGE MAX.	PEAK FORWARD CURRENT AT 1ms-300 PPS	REVERSE BREAKDOWN VOLTAGE MIN.	PEAK WAVE LENGTH
MODEL NO.		mcd	mA	mA	V	V	A	V	nm
5350T1	RED	5.0	10	30	2.2	3.0	.06	5	635
5350T5	GRN	4.0	10	30	2.3	3.0	.06	5	565
5350T7	YEL	3.8	10	20	2.2	3.0	.06	5	583
5350T1LC	RED	.5	2	7	1.8	2.2	.007	5	635
5350T5LC	GRN	1.2	2	7	1.8	2.2	.007	5	565
5350T7LC	YEL	.5	2	7	1.9	2.7	.007	5	583
5352T1-5V	RED	5.0	9.6	13	5.0	6.0	—	5	635
5352T3-5V	AMB	5.0	10.0	13	5.0	6.0	—	5	583
5352T5-5V	GRN	5.0	10.0	13	5.0	6.0	—	5	565
5352T1-5VLC	RED	2.0	3.5	5	5.0	6.0	—	5	635
5352T3-5VLC	AMB	4.0	3.5	5	5.0	6.0	—	5	583
5352T5-5VLC	GRN	2.0	3.5	5	5.0	6.0	—	5	565

LOW
CURRENT

BUILT-IN
RESISTOR
5 VOLTS

LOW
CURRENT
(BUILT-IN
RESISTOR)



SUB-MINIATURE CIRCUIT BOARD INDICATORS LED 2.00 mm BLOCK ASSEMBLY

RED
AMBER
GREEN
YELLOW

SERIES 5370T, 5372T

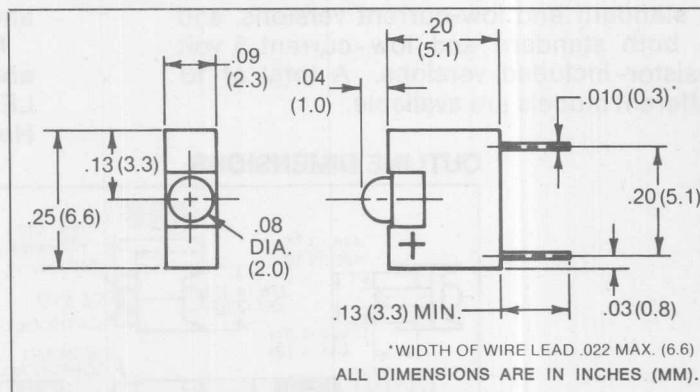
FEATURES

- Sub-miniature 2.0 mm LED vertical mounted to simplify PC board mounting — saves assembly time & costs
- Can be stacked side-by-side on 0.100" centers
- High Brite LEDs - high intensity light output - diffused lens
- Black Nylon plastic enhances contrast ratio
- Low current - only 2 mA
- Built-in resistor chip - operates off 5 volts without external resistor



5370T

OUTLINE DIMENSIONS



Alternate LEDs are also available in this package as standard variations.

FOR COMPLETE LED SPECIFICATIONS SEE PAGE 3-22, 3-23, 3-24, 2-25

SPECIFICATIONS	COLOR	TYPICAL INTENSITY	RATED CURRENT	CONTINUOUS FORWARD CURRENT	FORWARD VOLTAGE TYP.	FORWARD VOLTAGE MAX.	PEAK FORWARD CURRENT AT 1ms-300 PPS	REVERSE BREAKDOWN VOLTAGE MIN.	PEAK WAVE LENGTH
MODEL NO.		mcd	mA	mA	V	V	A	V	nm
5370T1	RED	5.0	10	30	2.2	3.0	.06	5	635
5370T5	GRN	4.0	10	30	2.3	3.0	.06	5	565
5370T7	YEL	3.8	10	20	2.2	3.0	.06	5	583
5370T1LC	RED	.5	2	7	1.8	2.2	.007	5	635
5370T5LC	GRN	1.2	2	7	1.8	2.2	.007	5	565
5370T7LC	YEL	.5	2	7	1.9	2.7	.007	5	583
5372T1-5V	RED	5.0	9.6	13	5.0	6.0	—	5	635
5372T3-5V	AMB	5.0	10	13	5.0	6.0	—	5	565
5372T5-5V	GRN	5.0	10	13	5.0	6.0	—	5	583
5372T1-5VLC	RED	2.0	3.5	5	5.0	6.0	—	5	635
5372T3-5VLC	AMB	4.0	3.5	5	5.0	6.0	—	5	565
5372T5-5VLC	GRN	2.0	3.5	5	5.0	6.0	—	5	583

LOW CURRENT

BUILT-IN RESISTOR 5 VOLTS

LOW CURRENT 5 VOLTS (BUILT-IN RESISTOR)



SURFACE MOUNT LED

SUB-MINIATURE 1.65 mm

RIGHT ANGLE BLOCK ASSEMBLY

RED
AMBER
GREEN
YELLOW

SERIES 6200T

Designated the model 6200 series, these devices position LEDs for easy visibility, particularly in applications where boards are mounted in parallel close to one another.

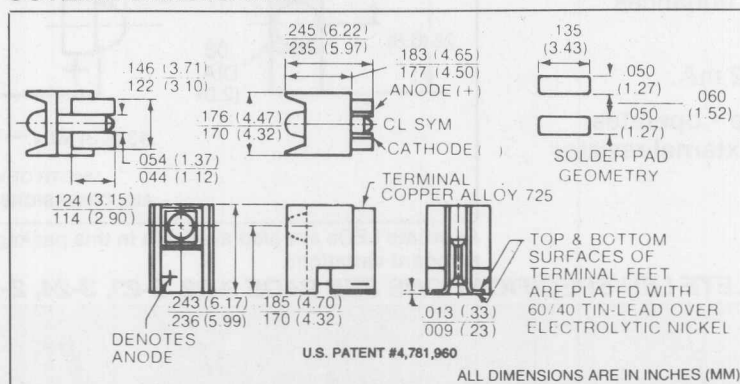
6200 series surface mount LEDs are available in red, amber, green, and yellow colors, in standard and low-current versions, and in both standard and low-current 5 volt resistor-included versions. A total of 13 different models are available.

6200 series LEDs are designed and packaged to meet the requirements of automated surfacemount production lines. These devices will withstand processing temperatures of either IR or vapor-phase reflow, and are compatible with most common fluxes and cleaning agents.

Model 6200 series surface mount LEDs are supplied on 16mm wide tapes with 1,000 LEDs per reel.

Housing: Black Polyphenylene Sulfide,
UL 94V-0

OUTLINE DIMENSIONS



SPECIFICATIONS	COLOR	TYPICAL INTENSITY	RATED CURRENT	CONTINUOUS FORWARD CURRENT MAX	FORWARD VOLTAGE TYP.	FORWARD VOLTAGE MAX.	PEAK FORWARD CURRENT AT 1 Ms-300PPS	REVERSE BREAKDOWN VOLTAGE MIN.	PEAK WAVE LENGTH	FOR MORE COMPLETE LED DATA
MODEL NO.		mcd	mA	mA	V	V	A	V	nm	PAGE
6200T1	RED	5.0	10	30	2.2	3.0	0.6	5	635	3-25
6200T3	AMB	5.0	10	30	2.0	3.0	—	5	603	3-25
6200T5	GRN	4.0	10	30	2.3	3.0	.06	5	565	3-25
6200T7	YEL	3.8	10	20	2.2	3.0	.06	5	583	3-25
6200T1LC	RED	.5	2	7	1.8	2.2	.007	5	635	3-22
6200T5LC	GRN	1.2	2	7	1.8	2.2	.007	5	565	3-22
6200T7LC	YEL	.5	2	7	1.9	2.7	.007	5	583	3-22
6202T1-5V	RED	5.0	9.6	13	5.0	6.0	—	5	635	3-23
6202T3-5V	AMB	5.0	10	13	5.0	6.0	—	5	565	3-23
6202T5-5V	GRN	5.0	10	13	5.0	6.0	—	5	583	3-23
6202T1-5VLC	RED	2.0	3.5	5	5.0	6.0	—	5	635	3-24
6202T3-5VLC	AMB	4.0	3.5	5	5.0	6.0	—	5	565	3-24
6202T5-5VLC	GRN	2.0	3.5	5	5.0	6.0	—	5	583	3-24

LOW
CURRENT

BUILT-IN
RESISTOR
5 VOLTS

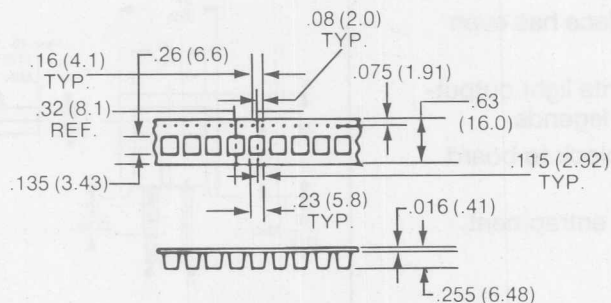
LOW
CURRENT
5 VOLTS



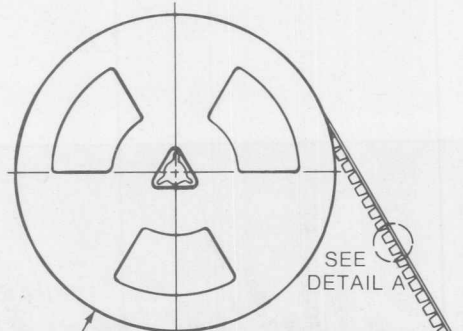
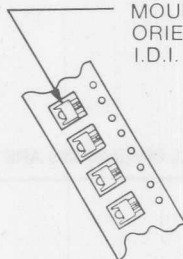
SURFACE MOUNT LED

16 mm WIDE TAPES - 1000 LEDS PER REEL

SERIES 6200T PACKAGING



TYPICAL (6 MM SURFACE
MOUNT LED ASSY)
ORIENTATION.
I.D.I. MODEL 6200.



22 IN (558.8)
REEL

NOTE: 8 MM PITCH
1000 PCS PER REEL.
MAT'L: .016 ANTI-STATIC MAT'L.
(.41)

U.S. PATENT #4,781,960

ALL DIMENSIONS ARE IN INCHES (MM).



CIRCUIT BOARD INDICATORS

2 mm x 5 mm RECTANGULAR LED

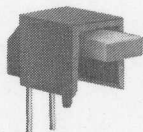
RED
GREEN
YELLOW

SERIES 6310D

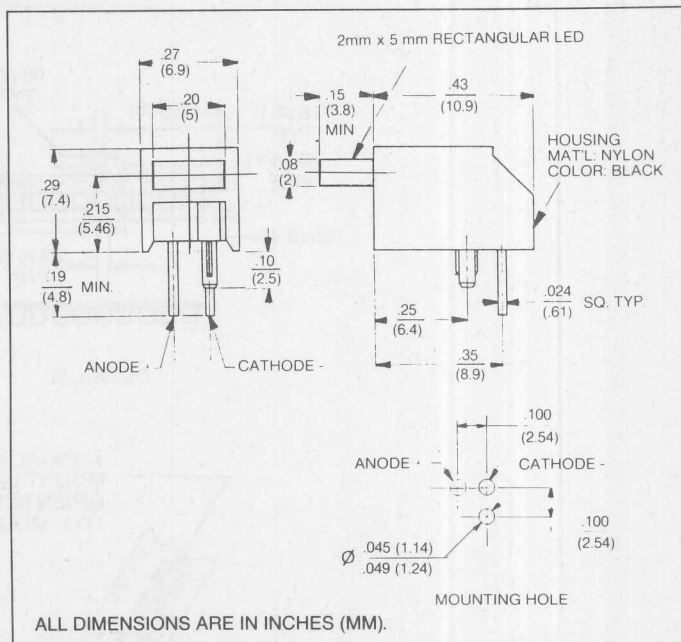
FEATURES

- Block mounting design assures height & side-by-side spacing.
- Flat rectangular LED face has even light distribution.
- 4 mcd typical Hight Brite light output-ideal for back lighting legends.
- Press-in-pin secures block to board while being soldered.
- Standoffs prevent flux entrapment.

Housing: Black Nylon



OUTLINE DIMENSIONS



SPECIFICATIONS	COLOR	TYPICAL INTENSITY	RATED CURRENT	CONTINUOUS FORWARD CURRENT-MAX	FORWARD VOLTAGE TYP.	FORWARD VOLTAGE MAX.	PEAK FORWARD CURRENT AT 1ms-300 PPS	REVERSE BREAKDOWN VOLTAGE MIN.	PEAK WAVE LENGTH	FOR MORE COMPLETE LED DATA
MODEL NO.		mcd	mA	mA	V	V	A	V	nm	PAGE
6310D1	RED	4	20	35	2.0	3.0	1.0	5	635	3-26
6310D5	GRN	4	20	30	2.2	3.0	.09	5	562	3-26
6310D7	YEL	4	20	35	2.1	3.0	1.0	5	585	3-26



CIRCUIT BOARD INDICATORS

2mm x 5 mm RECTANGULAR LED

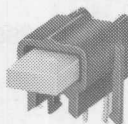
RED
GREEN
YELLOW

SERIES 5635D

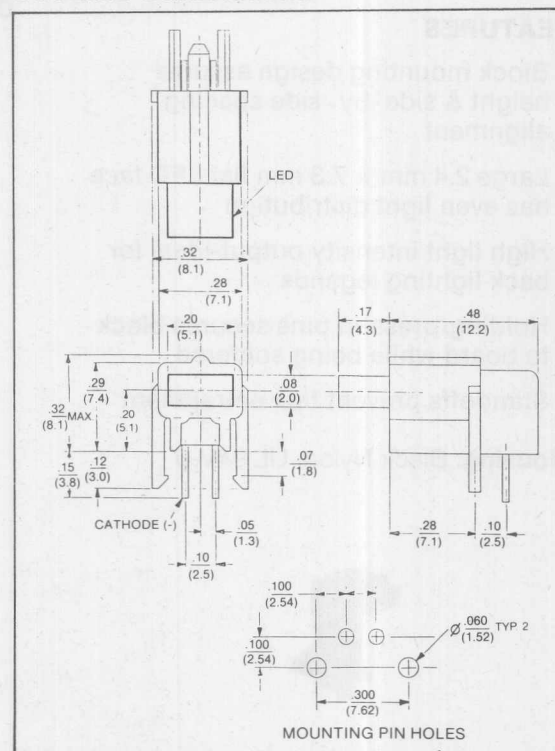
FEATURES

- Right angle block mounting design assures height & side by side spacing alignment
- Large rectangular 2mm x 5mm flat LED emits even light distribution
- 4 mcd typical high brite light output. Ideal for back lighting legends
- Unique "Harpoon Pins" secure block to board while soldering
- Standoffs prevent flux entrapment

Housing: Black Thermoplastic
Polyester UL 94V-0



OUTLINE DIMENSIONS



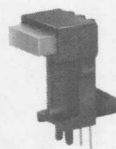
SPECIFICATIONS	COLOR	TYPICAL INTENSITY	RATED CURRENT	CONTINUOUS FORWARD CURRENT-MAX	FORWARD VOLTAGE TYP.	FORWARD VOLTAGE MAX.	PEAK FORWARD CURRENT AT 1ms-300 PPS	REVERSE BREAKDOWN VOLTAGE MIN.	PEAK WAVE LENGTH	FOR MORE COMPLETE LED DATA
MODEL NO.		mcd	mA	mA	V	V	A	V	nm	PAGE
5635D1	RED	4.0	20	35	2.0	3.0	1.0	5	635	3-26
5635D5	GRN	4.0	20	35	2.2	3.0	.09	5	562	3-26
5635D7	YEL	4.0	20	35	2.1	3.0	1.0	5	585	3-26

SERIES 5620R

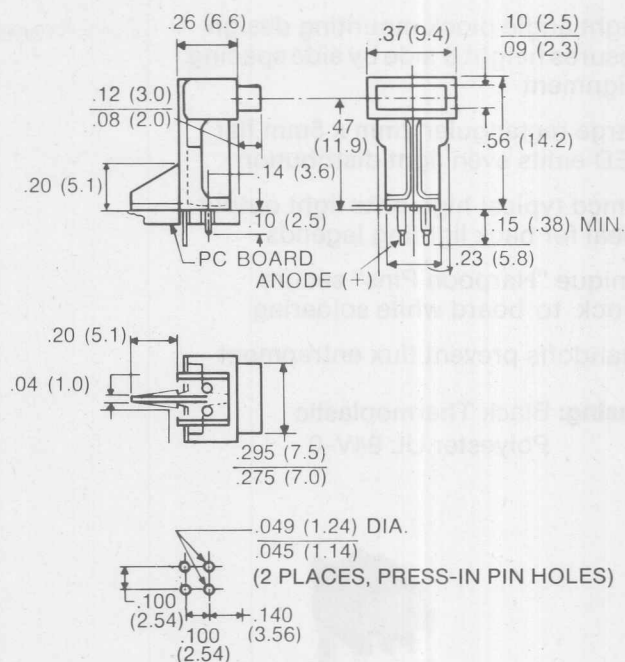
FEATURES

- Block mounting design assures height & side-by-side spacing alignment
- Large 2.4 mm x 7.3 mm flat LED face has even light distribution
- High light intensity output-ideal for back lighting legends
- Holding/press-in pins secures block to board while being soldered
- Standoffs prevent flux entrapment

Housing: Black Nylon, UL 94V-0



OUTLINE DIMENSIONS



HOLE PATTERN REQUIRED

ALL DIMENSIONS ARE IN INCHES (MM).

FOR COMPLETE LED SPECIFICATIONS SEE PAGE 3-28

SPECIFICATIONS	COLOR	TYPICAL INTENSITY	RATED CURRENT	CONTINUOUS FORWARD CURRENT	FORWARD CURRENT MAX.	FORWARD VOLTAGE TYP.	FORWARD VOLTAGE MAX.	PEAK FORWARD CURRENT AT 1ms-300 PPS	REVERSE BREAKDOWN VOLTAGE MIN.	PEAK WAVE LENGTH
MODEL NO.		mcd	mA	mA	V	V	V	A	V	nm
5620R1	RED	5	25	30	2.1	3.0	.09	5	635	
5620R5	GRN	7	20	30	2.3	3.0	.09	5	565	
5620R7	YEL	5	20	20	2.2	3.0	.06	5	583	

CIRCUIT BOARD INDICATOR
TRI-COLOR 5.1 mm x 2.0 RECTANGULAR LED

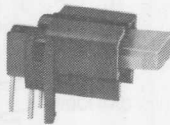
**RED/
GREEN/
AMBER**

MODEL 5639D1/5

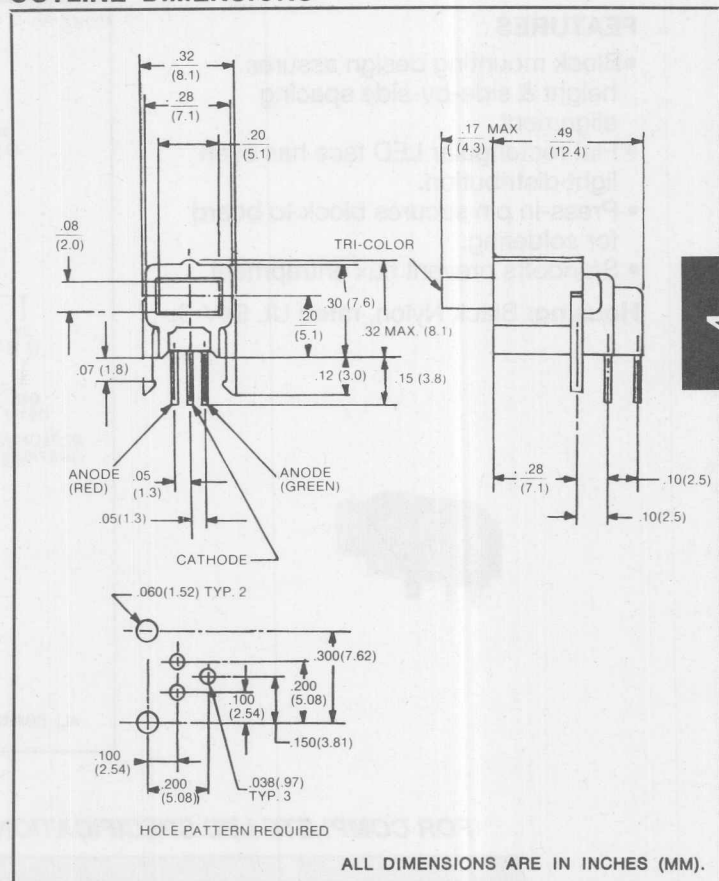
FEATURES

- 3 lead design provides 3 color output
- Brightness matched chips
- Block mounting for consistent height and spacing alignment-saves assembly cost
- Snap-in mounting
- Standoffs prevent flux entrapment

HOUSING: Thermoplastic polyester, black UL 94 V-O



OUTLINE DIMENSIONS



ALL DIMENSIONS ARE IN INCHES (MM).

SPECIFICATIONS	COLOR	TYPICAL INTENSITY	RATED CURRENT	CONTINUOUS FORWARD CURRENT-MAX	FORWARD VOLTAGE TYP.	PEAK FORWARD CURRENT AT 1 Ms-300PPS	REVERSE BREAKDOWN VOLTAGE MIN	PEAK WAVE LENGTH	FOR MORE COMPLETE LED DATA
MODEL NO.		mcd	mA	mA	V	mA	V	nm	PAGE
5639D1/5	Red	3.5	20	25	2.1	25	5	635	3-29
	Grn	4.0	20	25	2.3	25	5	565	3-29



CIRCUIT BOARD INDICATORS

2mm × 5mm RECTANGULAR LED

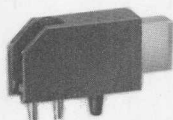
RED
AMBER
GREEN
YELLOW

SERIES 5636D

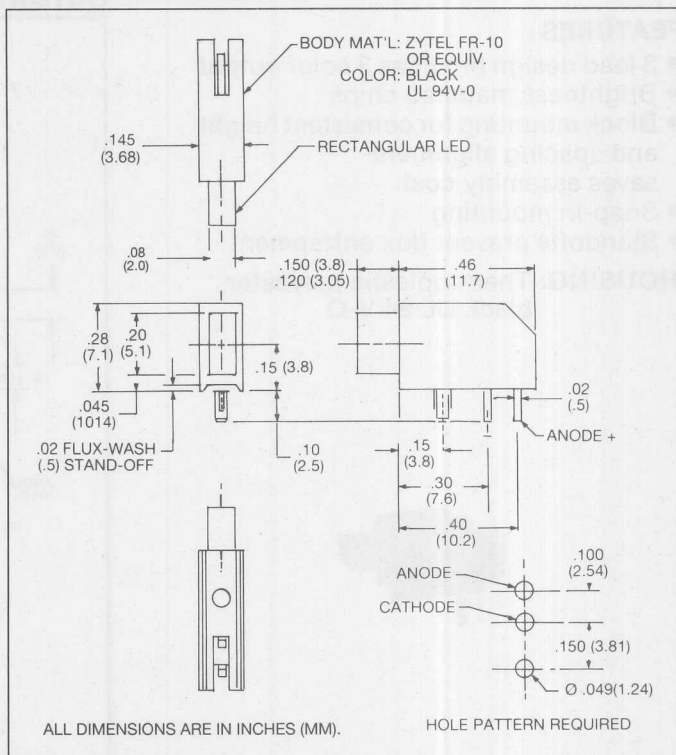
FEATURES

- Block mounting design assures height & side-by-side spacing alignment.
- Flat rectangular LED face has even light distribution.
- Press-in pin secures block to board for soldering.
- Standoffs prevent flux entrapment

Housing: Black Nylon, rated UL 94V-0.



OUTLINE DIMENSIONS



FOR COMPLETE LED SPECIFICATIONS SEE PAGE 3-26

SPECIFICATIONS	COLOR	TYPICAL INTENSITY	RATED CURRENT	CONTINUOUS FORWARD CURRENT	FORWARD VOLTAGE TYP.	FORWARD VOLTAGE MAX.	PEAK FORWARD CURRENT AT 1ms-300PPS	REVERSE BREAKDOWN VOLTAGE MIN.	PEAK WAVE LENGTH
MODEL NO.		mcd	mA	mA	V	V	A	V	nm
5636D1	RED	4	20	30	2.1	2.5	1.0	5	700
5636D3	AMB	4	20	50	2.2	2.5	1.0	5	605
5636D5	GRN	4	20	50	2.1	2.5	1.0	5	565
5636D7	YEL	4	20	50	2.2	2.5	1.0	5	585



MULTIPOSITION LED ARRAYS

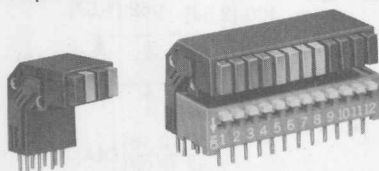
2 × 5mm RECTANGULAR—1 TO 14 POSITIONS

RED
AMBER
GREEN
YELLOW

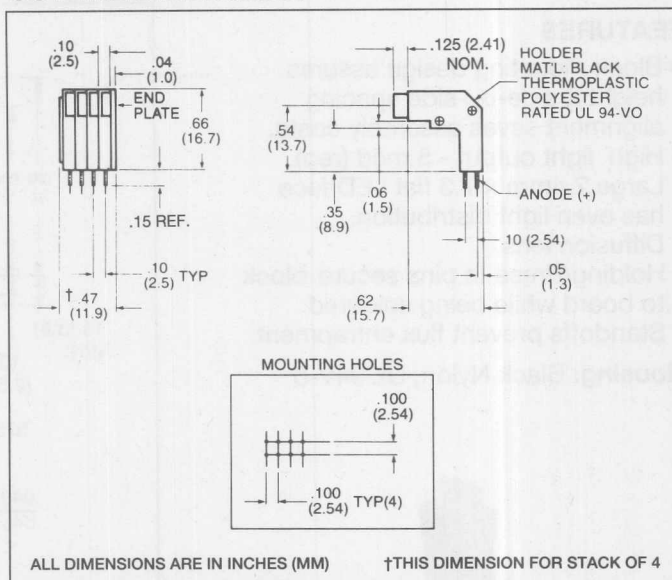
SERIES 5632D

FEATURES

- Stackable—1 to 14 positions.
- Designed to align with right angle DIP switches.
- Indicates status on/off – offered in red, green, yellow.
- 100° viewing angle – diffused epoxy.
- Standoffs prevent flux entrapment.
- High-contrast black housing meets UL 94V-0 and Bellcore flammability entrapment.



OUTLINE DIMENSIONS

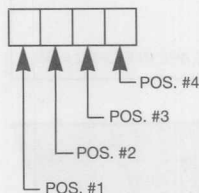


DIP switch not supplied. Shown for illustrative purposes only.

ORDERING INFORMATION : Use chart below to determine model number.

COLOR CODE

	RED	AMBER	GREEN	YELLOW
LED	1	3	5	7



MODEL NO. IS AS FOLLOWS: 5632D

POS. #1 ; POS. #2 ; POS. #3 ; POS. #4

When ordering more than 4 positions, please call factory for model number.

EXAMPLE: Positions 1, 2 & 3 are red, position 4 is yellow.

The part number would be: **5632D1;1;1;7**

LED COLOR CODE	COLOR	TYPICAL INTENSITY	RATED CURRENT	CONTINUOUS FORWARD CURRENT-MAX.	FORWARD VOLTAGE TYP.	FORWARD VOLTAGE MAX.	REVERSE BREAKDOWN VOLTAGE MIN.	PEAK WAVE LENGTH	FOR MORE COMPLETE LED DATA
NO.		mcd	mA	mA	V	V	V	nm	PAGE
1	RED	4.0	20	35	2.0	3.0	5.0	635	3-26
3	AMB	4.0	20	30	2.2	3.0	5.0	600	3-26
5	GRN	4.0	20	35	2.1	3.0	5.0	562	3-26
7	YEL	4.0	20	30	2.0	3.0	5.0	585	3-26

Industrial Devices, Inc., 260 Railroad Ave., Hackensack, NJ 07601 • (201)489-8989 • FAX: (201) 489-6911



CIRCUIT BOARD INDICATORS

2.4mm x 7.3mm RECTANGULAR LED VERTICAL BLOCK ASSEMBLY

RED
AMBER
GREEN
YELLOW

SERIES 5610R, 5611R

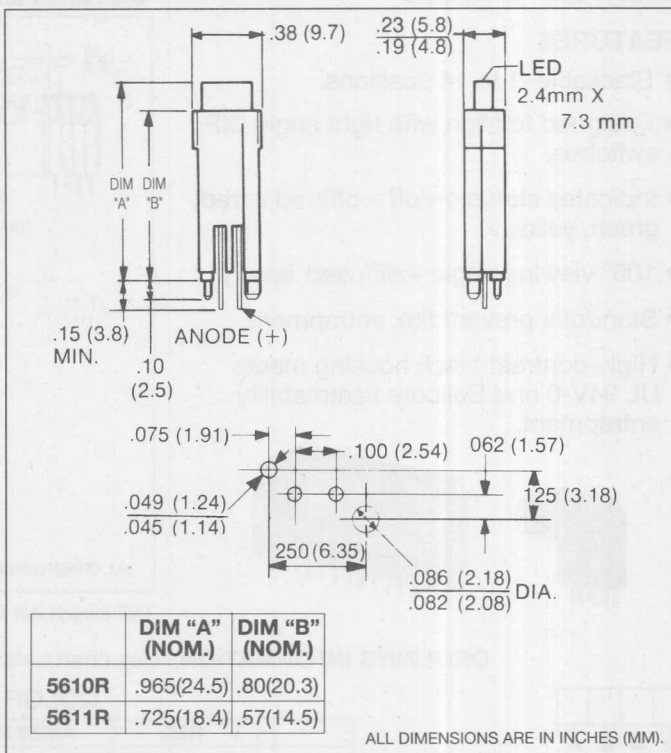
FEATURES

- Block mounting design assures height & side-by-side spacing alignment saves assembly costs.
- High light output - 5 mcd (red).
- Large 2.4mm x 7.3 flat LED face has even light distribution. Diffusion lens.
- Holding/Press-in pins secure block to board while being soldered.
- Standoffs prevent flux entrapment.

Housing: Black Nylon, UL 94V-0



OUTLINE DIMENSIONS



FOR COMPLETE LED SPECIFICATIONS SEE PAGE 3-27

SPECIFICATIONS	COLOR	TYPICAL INTENSITY	RATED CURRENT	CONTINUOUS FORWARD CURRENT	FORWARD VOLTAGE TYP.	FORWARD VOLTAGE MAX.	PEAK FORWARD CURRENT AT 1ms-300PPS	REVERSE BREAKDOWN VOLTAGE MIN.	PEAK WAVE LENGTH
MODEL NO.		mcd	mA	mA	V	V	A	V	nm
5610R1	RED	5	25	30	2.2	3.0	.09	5	635
5610R3	AMB	3.5	20	30	2.2	3.0	.09	5	600
5610R5	GRN	7	20	30	2.3	3.0	.09	5	565
5610R7	YEL	5	20	30	2.2	3.0	.06	5	583
5611R1	RED	5	25	30	2.2	3.0	.09	5	635
5611R3	AMB	3.5	20	30	2.2	3.0	.09	5	600
5611R5	GRN	7	20	30	2.3	3.0	.09	5	565
5611R7	YEL	5	20	30	2.2	3.0	.06	5	583

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CIRCUIT BOARD INDICATORS

2.4mm × 7.3mm RECTANGULAR LED VERTICAL BLOCK ASSEMBLY

RED
AMBER
GREEN
YELLOW

SERIES 5612R

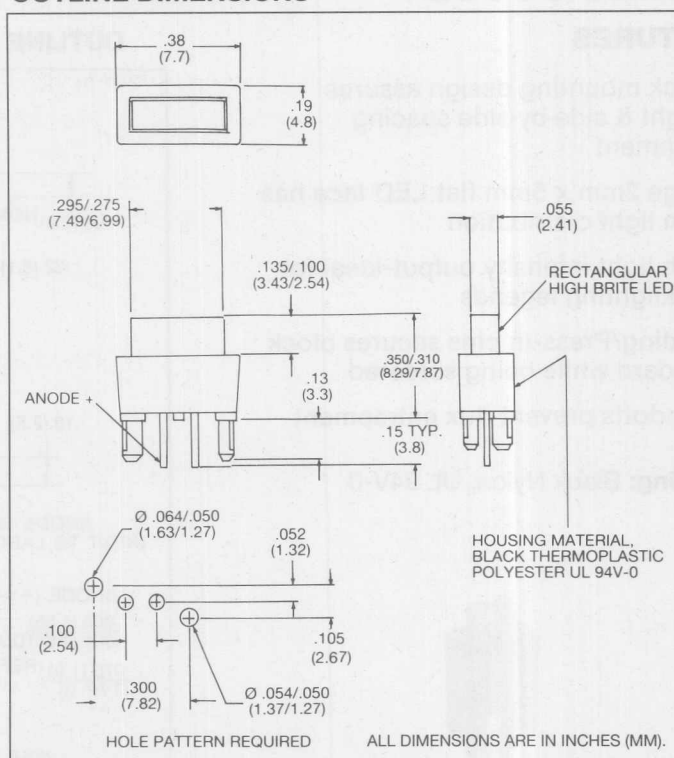
FEATURES

- Block mounting design assures height & side-by-side spacing alignment saves assembly costs.
- High light output - 5 mcd (red).
- Large 2.4mm × 7.3 flat LED face has even light distribution.
- Diffusion lens.
- Holding/Press-in pins secures block to board while being soldered.
- Standoffs prevent flux entrapment.

Housing: Black Thermoplastic Polyester (UL 94V-0)



OUTLINE DIMENSIONS



FOR COMPLETE LED SPECIFICATIONS SEE PAGE 3-27

SPECIFICATIONS	COLOR	TYPICAL INTENSITY	RATED CURRENT	CONTINUOUS FORWARD CURRENT-MAX.	FORWARD VOLTAGE TYP.	FORWARD VOLTAGE MAX.	PEAK FORWARD CURRENT AT 1ms-300PPS	REVERSE BREAKDOWN VOLTAGE MIN.	PEAK WAVE LENGTH
MODEL NO.		mcd	mA	mA	V	V	A	V	nm
5612R1	RED	5	20	30	2.2	3.0	.09	5	635
5612R3	AMB	5	20	30	2.2	3.0	.09	5	600
5612R5	GRN	7	20	30	2.3	3.0	.09	5	569
5612R7	YEL	5	20	30	2.2	3.0	.06	5	583

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CIRCUIT BOARD INDICATORS

2mm x 5mm RECTANGULAR LED
VERTICAL BLOCK ASSEMBLY

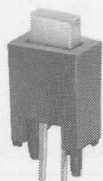
RED
GREEN
YELLOW

SERIES 5630D

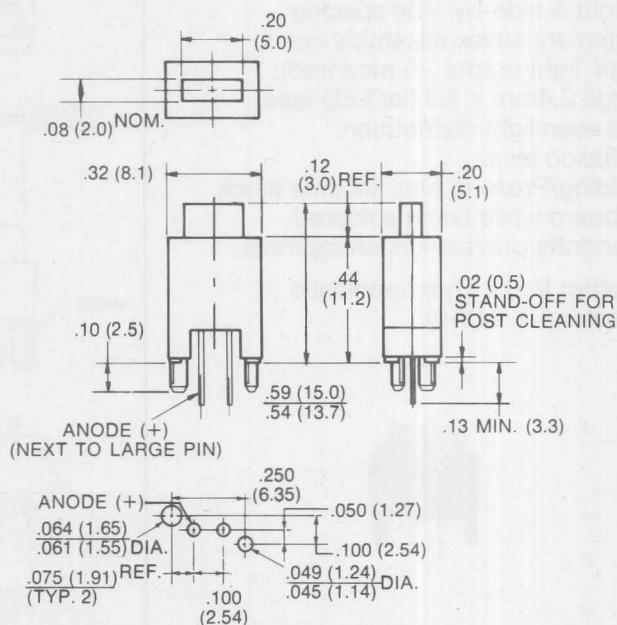
FEATURES

- Block mounting design assures height & side-by-side spacing alignment
- Large 2mm x 5mm flat LED face has even light distribution
- High light intensity output-ideal for backlighting legends
- Holding/Press-in pins secures block to board while being soldered
- Standoffs prevent flux entrapment

Housing: Black Nylon, UL 94V-0



OUTLINE DIMENSIONS



HOLE PATTERN REQUIRED

ALL DIMENSIONS ARE IN INCHES (MM).

SPECIFICATIONS	COLOR	TYPICAL INTENSITY	RATED CURRENT	CONTINUOUS FORWARD CURRENT-MAX	FORWARD VOLTAGE TYP.	FORWARD VOLTAGE MAX.	PEAK FORWARD CURRENT AT 1ms-300 PPS	REVERSE BREAKDOWN VOLTAGE MIN.	PEAK WAVE LENGTH	FOR MORE COMPLETE LED DATA
MODEL NO.		mcd	mA	mA	V	V	A	V	nm	PAGE
5630D1	RED	4.0	20	35	2.0	3.0	.1	5	635	3-26
5630D5	GRN	4.0	20	30	2.2	3.0	.09	5	562	3-26
5630D7	YEL	4.0	20	35	2.1	3.0	.1	5	585	3-26



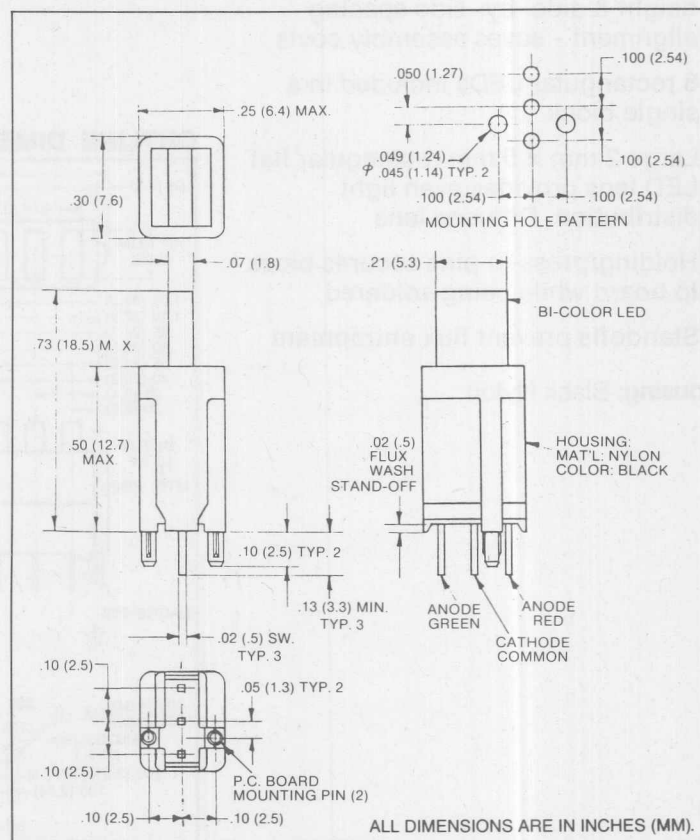
**RED/GREEN
AMBER**

SERIES 6300D1/5

FEATURES

- Block mounting design assures height & side-by-side spacing alignment. Saves assembly costs.
- Tri-Color rectangular LED in one package saves PC board space.
- Large rectangular flat LED lens has even light distribution-lens clear-diffused.
- Holding/press-in pins secures block to board while being soldered.
- Standoffs prevent flux entrapment.
- Lights amber when both chips are on.

Housing: Black Nylon.



FOR COMPLETE LED SPECIFICATIONS SEE PAGE 3-29

SPECIFICATIONS	COLOR	TYPICAL INTENSITY	RATED CURRENT	CONTINUOUS FORWARD CURRENT	MAX FORWARD VOLTAGE	TYP. FORWARD VOLTAGE	MAX. PEAK AT 1ms-300 PPS	REVERSE VOLTAGE MIN.	PEAK WAVE LENGTH
MODEL NO.		mcd	mA	mA	V	V	A	V	nm
6300D1/5	RED/GRN	.6	15	20	2.2	2.8	—	4	635 (R)/565 (G)



CIRCUIT BOARD INDICATORS

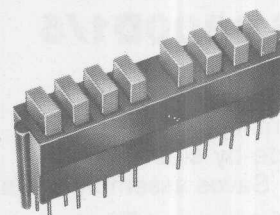
2 mm x 5 mm RECTANGULAR LEDS
8 BLOCK ASSEMBLY

RED

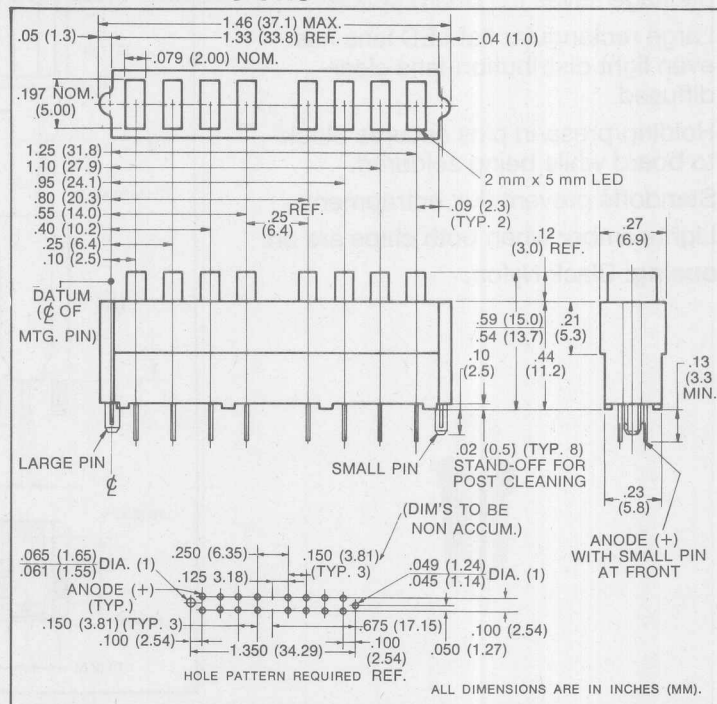
SERIES 5638D

- Block mounting design assures height & side-by-side spacing alignment - saves assembly costs
- 8 rectangular LEDs included in a single block
- Large 2 mm x 5 mm rectangular flat LED lens provides even light distribution. Diffused lens
- Holding/press-in pins secures block to board while being soldered
- Standoffs prevent flux entrapment

Housing: Black Nylon



OUTLINE DIMENSIONS



Alternate LEDs are also available in this package as standard variations.

SPECIFICATIONS	COLOR	TYPICAL INTENSITY	RATED CURRENT	CONTINUOUS FORWARD CURRENT-MAX	FORWARD VOLTAGE TYP.	FORWARD VOLTAGE MAX.	PEAK FORWARD CURRENT AT 1ms-300 PPS	REVERSE BREAKDOWN VOLTAGE MIN.	PEAK WAVE LENGTH	FOR MORE COMPLETE LED DATA
MODEL NO.		mcd	mA	mA	V	V	A	V	nm	PAGE
5638D1	RED	1.0	10	30	2.1	2.5	.1	4	700	3-26

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CIRCUIT BOARD INDICATOR

T-1 LED BLOCK ASSEMBLY

MODULAR ARRAY CONSTRUCTION

RED
AMBER
GREEN
YELLOW

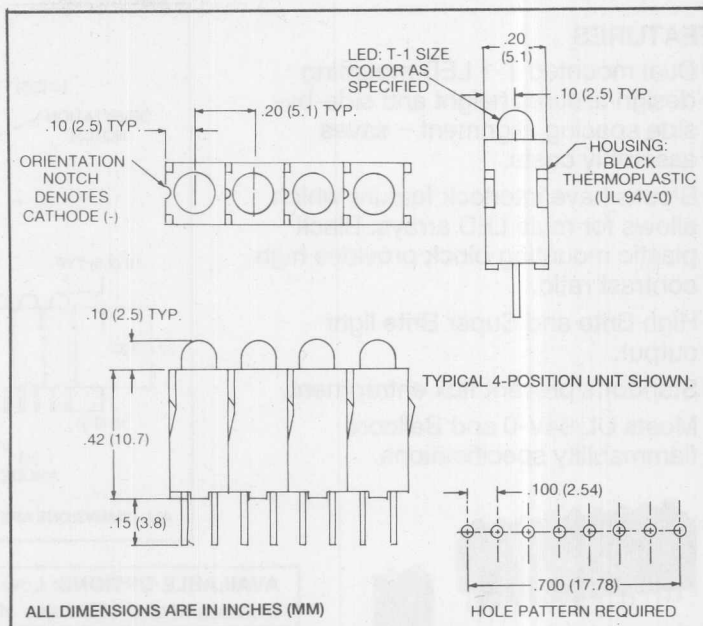
SERIES 6321F

FEATURES

- T-1 LED block mounting design assures height and side-by-side spacing alignment saves assembly costs.
- Blocks have interlock feature which allows for multi LED arrays. Black plastic mounting block provides high contrast ratio.
- High Brite and Super Brite light output.
- Standoffs prevent flux entrapment.
- Meets UL 94V-0 and Bellcore flammability specifications.



OUTLINE DIMENSIONS



AVAILABLE OPTIONS: Low current, 5 volt and 12 volt built-in resistors, bicolor and blue LEDs also offered. Call factory for ordering information.

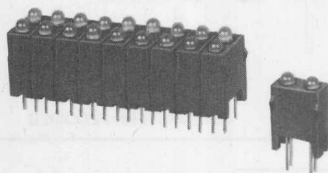
ORDERING INFORMATION : When ordering arrays, please call factory for model number.

SPECIFICATIONS	COLOR	TYPICAL INTENSITY	RATED CURRENT	CONTINUOUS FORWARD CURRENT-MAX.	FORWARD VOLTAGE TYP.	FORWARD VOLTAGE MAX.	REVERSE BREAKDOWN VOLTAGE MIN.	PEAK WAVE LENGTH
MODEL NO.		mcd	mA	mA	V	V	V	nm
6321F1	RED	10.0	10	25	2.2	3.0	5.0	635
6321F3	AMB	6.5	10	25	2.2	3.0	5.0	602
6321F5	GRN	8.5	10	25	2.3	3.0	5.0	565
6321F7	YEL	10.0	10	20	2.2	3.0	5.0	583

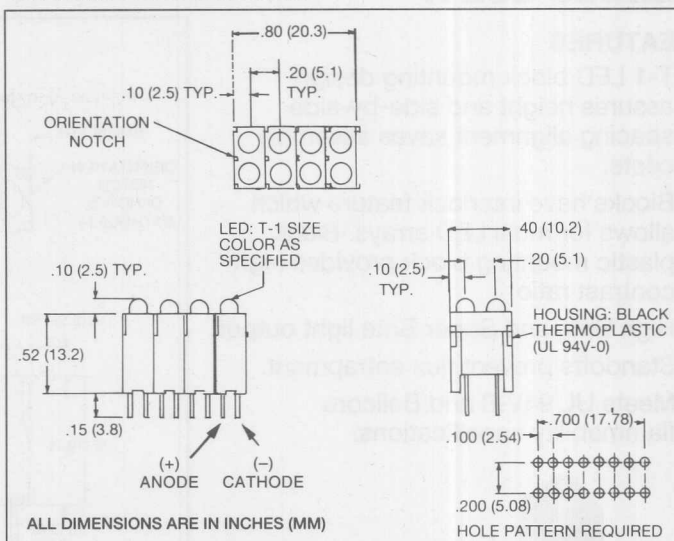
SERIES 6322F

FEATURES

- Dual mounted T-1 LED mounting design assures height and side-by-side spacing alignment – saves assembly costs.
- Blocks have interlock feature which allows for multi LED arrays. Black plastic mounting block provides high contrast ratio.
- High Brite and Super Brite light output.
- Standoffs prevent flux entrapment.
- Meets UL 94V-0 and Bellcore flammability specifications.



OUTLINE DIMENSIONS

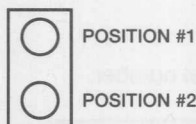


AVAILABLE OPTIONS: Low current, 5 volt and 12 volt built-in resistors, bicolor and blue LEDs also offered. Call factory for ordering information.

ORDERING INFORMATION : Use chart below to determine model number.

COLOR CODE

	RED	AMBER	GREEN	YELLOW
LED	1	3	5	7



MODEL NO. IS AS FOLLOWS: 6322F

POS. #1

POS. #2

EXAMPLE: Position 1 is red, position 2 is yellow.

The part number is: **6322F17**

SPECIFICATIONS	COLOR	TYPICAL INTENSITY	RATED CURRENT	CONTINUOUS FORWARD CURRENT-MAX.	FORWARD VOLTAGE TYP.	FORWARD VOLTAGE MAX.	REVERSE BREAKDOWN VOLTAGE MIN.	PEAK WAVE LENGTH
MODEL NO.		mcd	mA	mA	V	V	V	nm
6322F11	RED;RED	10.0	10	25	2.2	3.0	5.0	635
6322F33	AMB;AMB	6.5	10	25	2.2	3.0	5.0	602
6322F55	GRN;GRN	8.5	10	25	2.3	3.0	5.0	565
6322F77	YEL;YEL	10.0	10	20	2.2	3.0	5.0	583

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CIRCUIT BOARD INDICATOR

ULTRA-BRITE 120 mcd
LED T-1 $\frac{3}{4}$ (5.0 mm)

RED
GREEN
YELLOW

SERIES 5332H

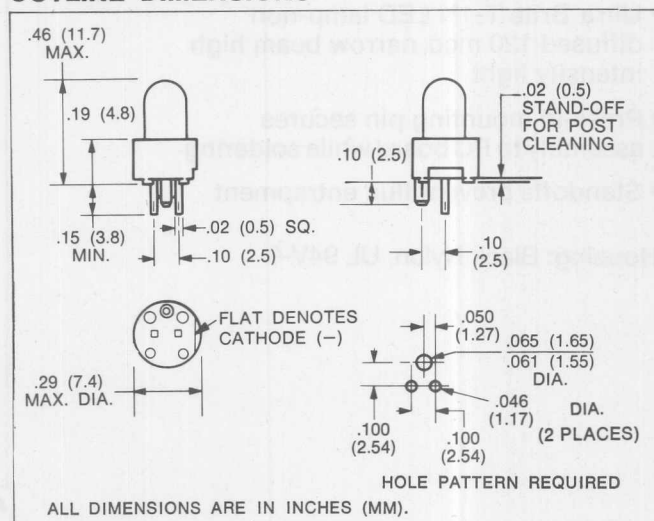
FEATURES

- Block mounting, height & spacing alignment—saves assembly time & cost
- Ultra-Brite T-1 $\frac{3}{4}$ LED Lamp-non diffused 120 mcd-narrow beam high intensity light
- Press-in mounting pin-secures assembly to PC board while soldering
- Standoffs prevent flux entrapment

Housing: Black Nylon



OUTLINE DIMENSIONS



Alternate LEDs are also available in this package as standard variations.

FOR COMPLETE LED SPECIFICATIONS SEE PAGE 3-12.

SPECIFICATIONS	COLOR	TYPICAL INTENSITY	RATED CURRENT	CONTINUOUS FORWARD CURRENT-MAX	FORWARD VOLTAGE TYP.	FORWARD VOLTAGE MAX.	PEAK FORWARD CURRENT AT 1ms-300 PPS	REVERSE BREAKDOWN VOLTAGE MIN.	PEAK WAVE LENGTH
MODEL NO.		mcd	mA	mA	V	V	A	V	nm
5332H1	RED	120	20	35	2.0	3.0	1.0	5	635
5332H5	GRN	120	20	20	2.1	2.5	—	4	565
5332H7	YEL	120	20	35	2.1	3.0	1.0	5	585

NON-DIFFUSED LED



CIRCUIT BOARD INDICATOR

ULTRA BRITE 120 mcd
LED T-1 $\frac{3}{4}$ (5 mm)

RED
GREEN
YELLOW

SERIES 5331H

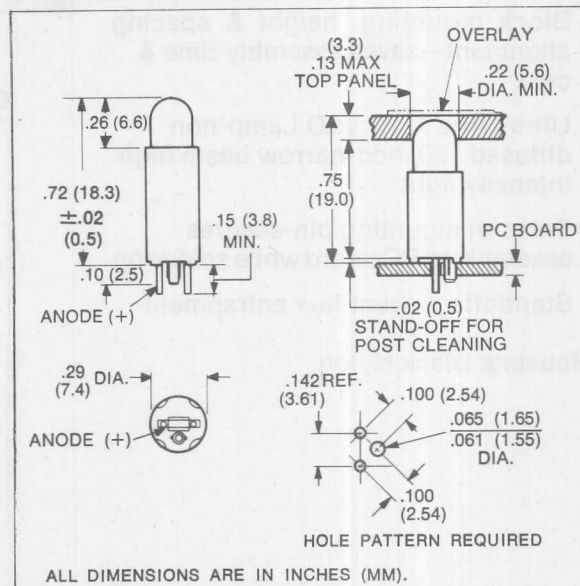
FEATURES

- Block mounting, height & spacing alignment—saves assembly time & cost
- Ultra Brite T-1 $\frac{3}{4}$ LED lamp—non diffused 120 mcd, narrow beam high intensity light
- Press-in mounting pin secures assembly to PC board while soldering
- Standoffs prevent flux entrapment

Housing: Black Nylon, UL 94V-0



OUTLINE DIMENSIONS



Alternate LEDs are also available in this package as standard variations.

SPECIFICATIONS	COLOR	TYPICAL INTENSITY	RATED CURRENT	CONTINUOUS FORWARD CURRENT-MAX	FORWARD VOLTAGE TYP.	FORWARD VOLTAGE MAX.	PEAK FORWARD CURRENT AT 1 Ms-300pps	REVERSE BREAKDOWN VOLTAGE MIN.	PEAK WAVE LENGTH	FOR MORE COMPLETE LED DATA
MODEL NO.		mcd	mA	mA	V	V	A	V	nm	PAGE
5331H1	RED	120	20	35	2.0	3.0	1.0	5	635	3-12
5331H5	GRN	120	20	20	2.1	2.5	.09	5	555	3-12
5331H7	YEL	120	20	35	2.1	3.0	1.0	5	585	3-12

NON-DIFFUSED LED



CIRCUIT BOARD INDICATOR

SUPER BRITE 30 mcd
LED T-1 $\frac{3}{4}$ (5 mm)

RED
AMBER
GREEN
YELLOW

SERIES 5340H

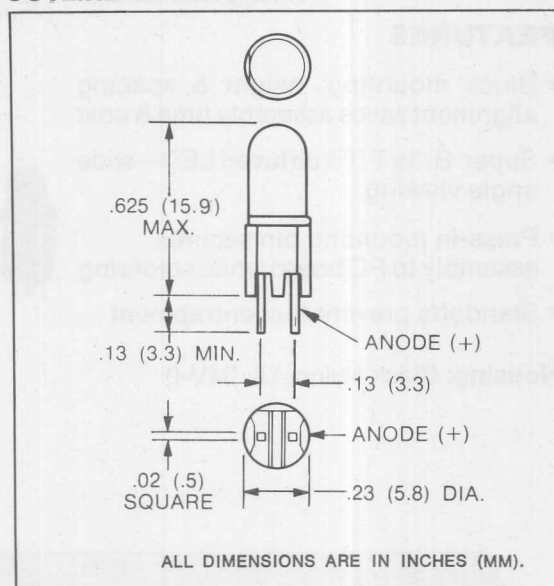
FEATURES

- Block mounting, height & spacing alignment saves assembly time & cost
- Super Brite T-1 $\frac{3}{4}$ LED Lamp-diffused wide angle viewing
- Standoffs prevent flux entrapment

Housing: Black Nylon, UL 94V-0



OUTLINE DIMENSIONS



Alternate LEDs are also available in this package as standard variations.

SPECIFICATIONS	COLOR	TYPICAL INTENSITY	RATED CURRENT	CONTINUOUS FORWARD CURRENT-MAX	FORWARD VOLTAGE TYP.	FORWARD VOLTAGE MAX.	PEAK FORWARD CURRENT AT 1 Ms-300PPS	REVERSE BREAKDOWN VOLTAGE MIN.	PEAK WAVE LENGTH	FOR MORE COMPLETE LED DATA
MODEL NO.		mcd	mA	mA	V	V	A	V	nm	PAGE
5340H1	RED	30	20	35	2.0	3.0	1.0	5	635	3-9
5340H3	AMB	20	20	35	2.0	3.0	1.0	5	608	3-9
5340H5	GRN	30	20	30	2.2	3.0	.09	5	562	3-9
5340H7	YEL	25	20	35	2.2	3.0	1.0	5	585	3-9
5340H1LC	RED	2.0	2	7	1.8	2.2	.007	5	635	3-5
5340H5LC	GRN	2.5	2	7	1.8	2.2	.007	5	562	3-5
5340H7LC	YEL	2.0	2	7	1.9	2.7	.007	5	585	3-5
5340H1-5V	RED	6.0	10	15	5	7.5	—	5	635	3-8
5340H3-5V	AMB	7.0	10	15	5	7.5	—	5	583	3-8
5340H5-5V	GRN	10.0	10	15	5	7.5	—	5	565	3-8

LOW CURRENT

BUILT-IN RESISTOR 5 VOLTS



CIRCUIT BOARD INDICATORS

SUPER BRITE 30 mcd

VARIABLE HEIGHT LED T-1 $\frac{3}{4}$ (5 mm) LAMP ASSEMBLY

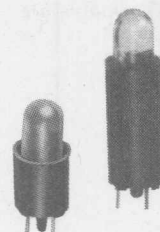
RED
AMBER
GREEN
YELLOW

SERIES 5330H, 5335H

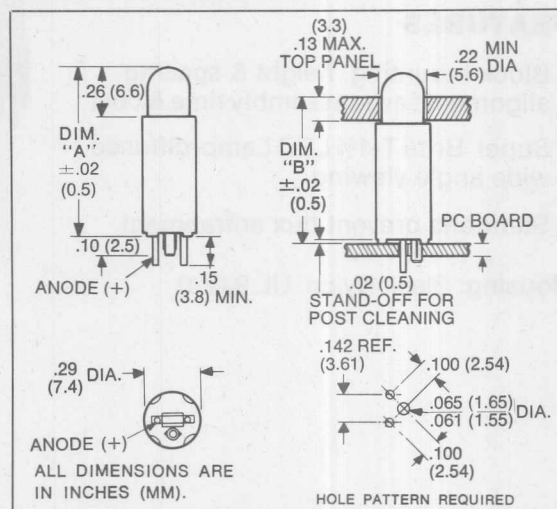
FEATURES

- Block mounting, height & spacing alignment saves assembly time & cost
- Super Brite T-1 $\frac{3}{4}$ diffused LED—wide angle viewing
- Press-in mounting pin secures assembly to PC board while soldering
- Standoffs prevent flux entrapment

Housing: Black Nylon, UL 94V-0



OUTLINE DIMENSIONS



Alternate LEDs are also available in this package as standard variations

SPECIFICATIONS	COLOR	TYPICAL INTENSITY	RATED CURRENT	CONTINUOUS FORWARD CURRENT	FORWARD-MAX VOLTAGE TYP.	FORWARD VOLTAGE MAX	PEAK FORWARD CURRENT AT 1 Ms-300PPS	REVERSE BREAKDOWN VOLTAGE MIN	PEAK WAVE LENGTH	DIM A INCHES (mm)	DIM B INCHES (mm)	FOR MORE COMPLETE LED DATA
MODEL NO.		mcd	mA	mA	V	V	A	V	nm			PAGE
5330H1	RED	30	20	35	2.0	3.0	1.0	5	635			3-9
5330H3	AMB	20	20	35	2.0	3.0	1.0	5	608			3-9
5330H5	GRN	30	20	30	2.2	3.0	.09	5	562			3-9
5330H7	YEL	25	20	35	2.2	3.0	1.0	5	585			3-9
5330H1LC	RED	2.0	2	7	1.8	2.2	.007	5	635			3-5
5330H5LC	GRN	2.5	2	7	1.8	2.2	.007	5	562	.87	.75	3-5
5330H7LC	YEL	2.0	2	7	1.9	2.7	.007	5	585	(22.1)	(19.0)	3-5
5330H1-5V	RED	6.0	10	15	5	7.5	—	5	635			3-8
5330H3-5V	AMB	7.0	10	15	5	7.5	—	5	583			3-8
5330H5-5V	GRN	10.0	10	15	5	7.5	—	5	565			3-8
5335H1	RED	30	20	35	2.0	3.0	1.0	5	635			3-9
5335H3	AMB	20	20	35	2.0	3.0	1.0	5	603			3-9
5335H5	GRN	30	20	30	2.2	3.0	.09	5	562			3-9
5335H7	YEL	25	20	35	2.2	3.0	1.0	5	585			3-9
5335H1LC	RED	2.0	2	7	1.8	2.2	.007	5	635			3-5
5335H5LC	GRN	2.5	2	7	1.8	2.2	.007	5	562	.57	.45	3-5
5335H7LC	YEL	2.0	2	7	1.9	2.7	.007	5	585	(14.5)	(11.4)	3-5
5335H1-5V	RED	6.0	10	15	5	7.5	—	5	635			3-8
5335H3-5V	AMB	7.0	10	15	5	7.5	—	5	583			3-8
5335H5-5V	GRN	10.0	10	15	5	7.5	—	5	562			3-8

LOW CURRENT

BUILT-IN RESISTOR 5 VOLTS

LOW CURRENT

BUILT-IN RESISTOR 5 VOLTS



CIRCUIT BOARD INDICATOR.

ULTRA-BRITE 120 mcd
LED T-1 $\frac{3}{4}$ (5 mm)

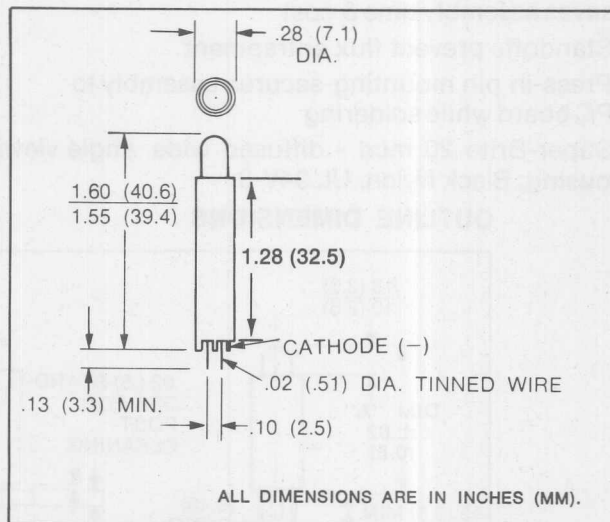
RED
GREEN
YELLOW

SERIES 5341H

FEATURES

- Block mounting, height & spacing alignment-saves assembly time & cost
- Ultra Brite T-1 $\frac{3}{4}$ LED-non diffused high brightness narrow light beam
- Standoffs prevent flux entrapment

Housing: Black Nylon, UL 94V-0



Alternate LEDs are also available in this package as standard variations.

SPECIFICATIONS	COLOR	TYPICAL INTENSITY	RATED CURRENT	CONTINUOUS FORWARD CURRENT-MAX.	FORWARD VOLTAGE TYP.	FORWARD VOLTAGE MAX.	PEAK FORWARD CURRENT AT 1 ms-300PPS	REVERSE BREAKDOWN VOLTAGE MIN.	PEAK WAVE LENGTH	FOR MORE COMPLETE LED DATA
MODEL NO.		mcd	mA	mA	V	V	A	V	nm	PAGE
5341H1	RED	120	20	35	2.0	3.0	1.0	5	635	3-12
5341H5	GRN	120	20	20	2.1	2.5	.09	4	565	3-12
5341H7	YEL	120	20	35	2.1	3.0	1.0	5	585	3-12





CIRCUIT BOARD INDICATOR

SUPER BRITE 20 mcd
LED T-1 (3 mm)

RED
GREEN
YELLOW

SERIES 5311F, 5313F

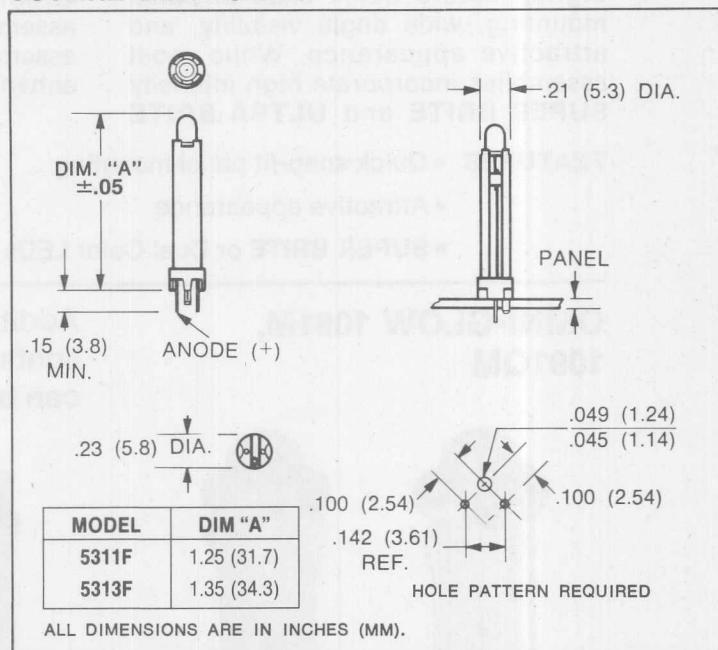
FEATURES

- Block mounting, height & spacing alignment saves assembly time & cost
- Standoffs prevent flux entrapment
- Press-in pin mounting-secures assembly to PC board while soldering
- Super Brite 20 mcd-diffused, wide angle viewing

Housing: Black Nylon, UL 94V-0



OUTLINE DIMENSIONS



Alternate LEDs are also available in this package as standard variations.

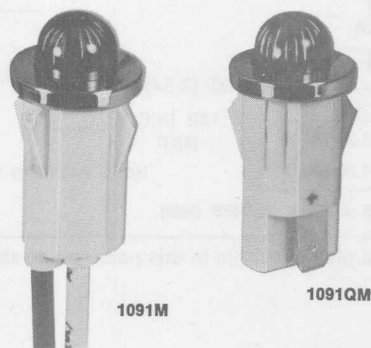
SPECIFICATIONS	COLOR	TYPICAL INTENSITY	RATED CURRENT	CONTINUOUS FORWARD CURRENT-MAX	FORWARD VOLTAGE TYP.	FORWARD VOLTAGE MAX.	PEAK FORWARD CURRENT AT 1ms-300 PPS	REVERSE BREAKDOWN VOLTAGE MIN.	PEAK WAVE LENGTH	FOR MORE COMPLETE LED DATA
MODEL NO.		mcd	mA	mA	V	V	A	V	nm	PAGE
5311F1	RED	6.0	10	30	2.0	3.0	1.0	5	635	3-19
5311F5	GRN	12.0	20	30	2.2	3.0	.09	5	562	3-19
5311F7	YEL	20.0	20	30	2.1	3.0	1.0	5	585	3-19
5313F1	RED	6.0	10	30	2.0	3.0	1.0	5	635	3-19
5313F5	GRN	12.0	20	30	2.2	3.0	.09	5	562	3-19
5313F7	YEL	20.0	20	30	2.1	3.0	1.0	5	585	3-19

IDI panel mounted LED indicator Lights feature quick snap-in panel mounting, wide angle visibility, and attractive appearance. While most assemblies incorporate high intensity **SUPER BRITE** and **ULTRA BRITE**

LEDs, we also offer our Dual (Red/-Green) LED in a panel mounted assembly (Model 5100H1/5). IDI LED assemblies are an economical way to enhance your front panel's appearance.

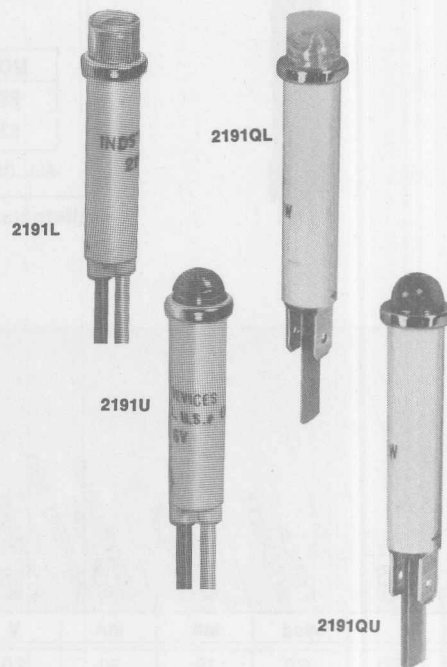
- FEATURES**
- Quick snap-fit panel mounting
 - Attractive appearance
 - **SUPER BRITE** or Dual Color LEDs

OMNI-GLOW 1091M, 1091QM



For Omni-Glow 1091M and 11091QM Series see pages 8-13, 8-14 in Non-Relampable section.

Additional LED Indicator lights are noted below and can be found in Section 7.



For Glo-Dot 2191L, 2191QL, 2191U and 2191QU Series see pages 8-21, 8-22 Non-Relampable section.



PANEL MOUNTED LED INDICATOR LIGHT

WITH WIRE LEADS 1/4" DIA. MOUNTING HOLE

RED
AMBER
GREEN
YELLOW
BLUE

SERIES 5100H, 5102H

FEATURES

- Super-Brite-30 mcd
- Low Current-only 2 mA
- Built-in resistor chip-operates directly off 5 volt or 12 volt supply without external resistor

Mounting: Will snap fit in .249/.254 (6.33/6.45) dia. hole in panels .031/.062

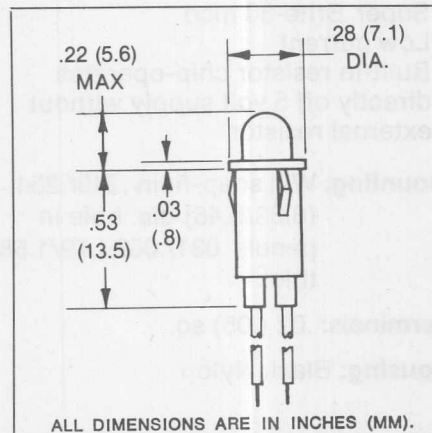
Wire Leads: No. 24 AWG, 6"(152.4) insulated, bonded strands, stripped 1/2"(12.7)

Anode(+): Red Lead

Housing: Black Nylon



OUTLINE DIMENSIONS



Alternate LEDs are also available in this package as standard variations.

SPECIFICATIONS	COLOR	TYPICAL INTENSITY	RATED CURRENT	CONTINUOUS FORWARD CURRENT-MAX	FORWARD VOLTAGE TYP.	FORWARD VOLTAGE MAX.	PEAK FORWARD CURRENT AT 1ms-300 PPS	REVERSE BREAKDOWN VOLTAGE MIN.	PEAK WAVE LENGTH	FOR MORE COMPLETE LED DATA
MODEL NO.		mcd	mA	mA	V	V	A	V	nm	PAGE
5100H1	RED	30	20	35	2.0	3.0	1.0	5	635	3-9
5100H3	AMB	20	20	35	2.0	3.0	1.0	5	608	3-9
5100H5	GRN	30	20	30	2.2	3.0	.09	5	562	3-9
5100H6	BLUE	3.0	45	50	3.4	3.9	—	5	470	3-10
5100H7	YEL	25	20	35	2.1	3.0	1.0	5	585	3-9
5100H1LC	RED	2.0	2	7	1.8	2.2	.007	5	635	3-5
5100H5LC	GRN	2.5	2	7	1.8	2.2	.007	5	565	3-5
5100H7LC	YEL	2.0	2	7	1.9	2.7	.007	5	585	3-5
5102H1-5V	RED	6.0	10	15	5	7.5	—	5	635	3-8
5102H3-5V	AMB	7.0	10	15	5	7.5	—	5	583	3-8
5102H5-5V	GRN	10.0	12	15	5	7.5	—	5	565	3-8
5102H1-12V	RED	4.0	13	15	12	20.0	—	5	635	3-8
5102H3-12V	AMB	4.0	13	15	12	20.0	—	5	583	3-8
5102H5-12V	GRN	4.0	13	15	12	20.0	—	5	565	3-8

LOW
CURRENT

BUILT-IN
RESISTOR
5 VOLTS

BUILT-IN
RESISTOR
12 VOLTS



PANEL MOUNTED LED INDICATOR LIGHT

WIRE WRAP TERMINALS, 1/4" MOUNTING HOLE

RED
AMBER
GREEN
YELLOW

SERIES 5101E, 5101H

FEATURES

- Super Brite-30 mcd
- Low current
- Built-in resistor chip-operates directly off 5 volt supply without external resistor

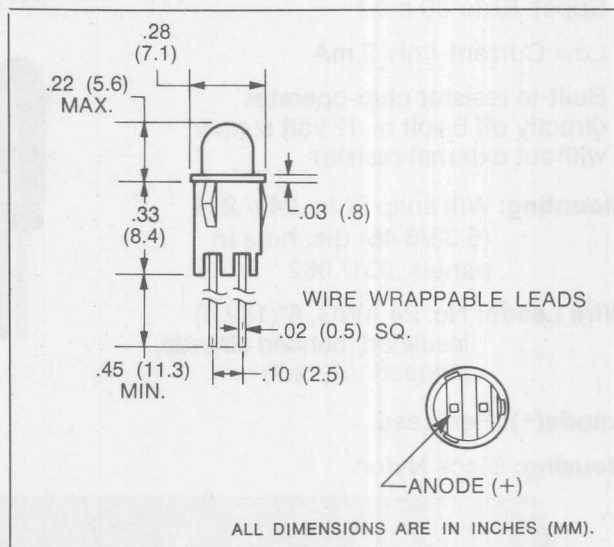
Mounting: Will snap-fit in .249/.254 (6.33/6.45) dia. hole in panels .031/.062 (.79/1.58) thick

Terminals: .02 (.05) sq.

Housing: Black Nylon



OUTLINE DIMENSIONS



Alternate LEDs are also available in this package as standard variations.

SPECIFICATIONS	COLOR	TYPICAL INTENSITY	RATED CURRENT	CONTINUOUS FORWARD CURRENT-MAX	FORWARD VOLTAGE TYP.	FORWARD VOLTAGE MAX.	PEAK FORWARD CURRENT AT 1ms-300 PPS	REVERSE BREAKDOWN VOLTAGE MIN.	PEAK WAVE LENGTH	FOR MORE COMPLETE LED DATA
MODEL NO.		mcd	mA	mA	V	V	A	V	nm	PAGE
5101E1	RED	20	20	35	2.0	3.0	1.0	5	635	3-4
5101H1	RED	30	20	35	2.0	3.0	1.0	5	635	3-9
5101H3	AMBER	20	20	35	2.0	3.0	1.0	5	608	3-9
5101H5	GRN	30	20	30	2.2	3.0	.09	5	562	3-9
5101H7	YEL	25	20	35	2.1	3.0	1.0	5	585	3-9
5101H1LC	RED	2.0	2	7	1.8	2.2	.007	5	635	3-5
5101H5LC	GRN	2.5	2	7	1.8	2.2	.007	5	565	3-5
5101H7LC	YEL	2.0	2	7	1.9	2.7	.007	5	583	3-5
5101H1-5V	RED	6.0	10.0	15	5	7.5	—	5	635	3-8
5101H3-5V	AMBER	7.0	10.0	15	5	7.5	—	5	583	3-8
5101H5-5V	GRN	10.0	12.0	15	5	7.5	—	5	565	3-8

LOW
CURRENT

BUILT-IN
RESISTOR
5 VOLTS



PANEL MOUNTED BI-COLOR LED INDICATOR WITH WIRE LEADS 1/4" MOUNTING HOLE

RED/GREEN

SERIES 5100H1/5

FEATURES

- Will light red or green by reversing polarity

Mounting: Will snap-fit in .249/.254 (6.33/6.45) dia. hole in panels .031/.062 (.79/1.58) thick

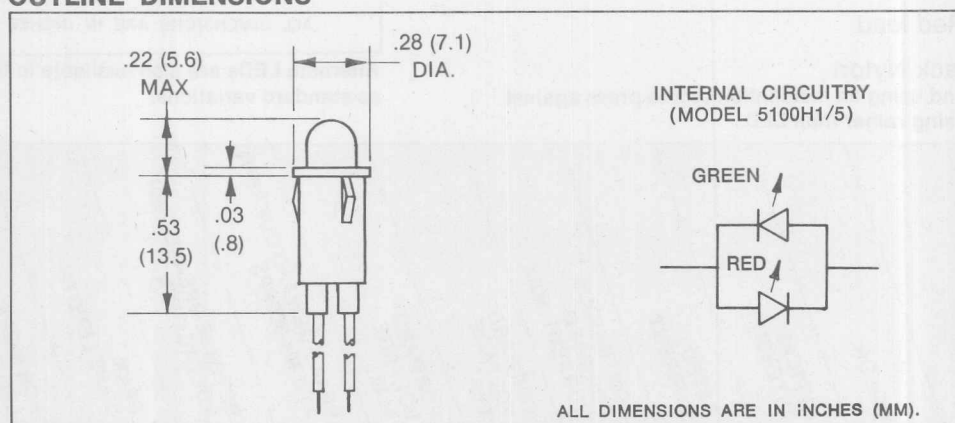
Wire Leads: No. 24 AWG, 6" (152.4) insulated, bonded strands, stripped 1/2" (12.7)

Anode (+): Yellow lead for red light — blue lead anode for green light

Housing: Black Nylon



OUTLINE DIMENSIONS



Alternate LEDs are also available in this package as standard variations.

SPECIFICATIONS	COLOR	TYPICAL INTENSITY	RATED CURRENT	CONTINUOUS FORWARD CURRENT-MAX	FORWARD VOLTAGE TYP.	FORWARD VOLTAGE MAX	PEAK FORWARD CURRENT AT 1 Ms-300PPS	REVERSE BREAKDOWN VOLTAGE MIN	PEAK WAVE LENGTH	FOR MORE COMPLETE LED DATA
MODEL NO.		mcd	mA	mA	V	V	A	V	nm	PAGE
5100H1/5	RED/GRN	6.0	20	10	2.2	2.8	.06	—	650 RED/565 GRN	3-6



PANEL MOUNTED LED INDICATOR LIGHT WITH WIRE LEADS 5/32" MOUNTING HOLE

RED
AMBER
GREEN
YELLOW
BLUE

SERIES 5110F FEATURES

- Super Brite T-1 LED 20 mcd diffused lens allows wide angle viewing
- Low Current-only 2 mA
- Built-in chip resistor-operates directly off 5 and 12 volt supply, no external resistor needed

Mounting: Will snap-fit in .155/.158 (3.94/4.01) dia. hole in panels
.031/.062 (.79/1.58) thick†

Wire Leads: No. 26 AWG, 6" (152.4) long, stripped .25(6.4)

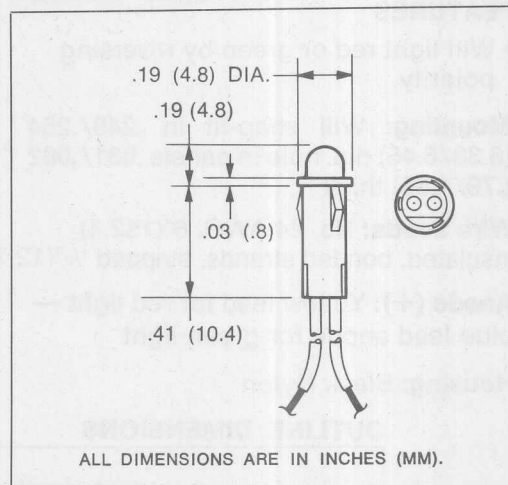
Anode (+): Red lead

Housing: Black Nylon

† We recommend using an installation tool to press against flange of housing rather than LED.



OUTLINE DIMENSIONS



Alternate LEDs are also available in this package as standard variations.

SPECIFICATIONS	COLOR	TYPICAL INTENSITY	RATED CURRENT	CONTINUOUS FORWARD CURRENT-MAX	FORWARD VOLTAGE TYP.	FORWARD VOLTAGE MAX.	PEAK FORWARD CURRENT AT 1 Ms-300PPS	REVERSE BREAKDOWN VOLTAGE MIN.	PEAK WAVE LENGTH	FOR MORE COMPLETE LED DATA
MODEL NO.		mcd	mA	mA	V	V	A	V	nm	PAGE
5110F1	RED	6	10	30	2.0	3.0	1.0	5	635	3-19
5110F3	AMBER	5	10	25	2.0	3.0	.09	5	603	3-19
5110F5	GRN	12	20	30	2.2	3.0	.09	5	562	3-19
5110F6	BLUE	1.3	30	35	3.2	3.5	—	5	470	3-20
5110F7	YEL	20	20	30	2.1	3.0	1.0	5	585	3-19
5110F1LC	RED	2	2	2.2	1.8	2.2	.007	5	635	3-16
5110F5LC	GRN	2.5	2	2.2	1.8	2.2	.007	5	565	3-16
5110F7LC	YEL	2	2	2.7	1.9	2.7	.007	5	583	3-16
5110F1-5V	RED	8.0	13	20	5	7.5	—	5	655	3-18
5110F3-5V	AMBER	8.0	10	15	5	7.5	—	5	583	3-18
5110F5-5V	GRN	8.0	12	15	5	7.5	—	5	565	3-18
5110F1-12V	RED	3	13	20	12	15	—	5	655	3-18
5110F3-12V	AMBER	4	10	20	12	15	—	5	583	3-18
5110F5-12V	GRN	12	12	20	12	15	—	5	565	3-18

LOW CURRENT

BUILT-IN RESISTOR 5 VOLTS

BUILT-IN RESISTOR 12 VOLTS



PANEL MOUNTED LED INDICATOR LIGHT

WITH WIRE WRAP TERMINALS 5/32" MOUNTING HOLE

RED
AMBER
GREEN
YELLOW

SERIES 5111F

FEATURES

- Super Brite T-1 LED 20 mcd-diffused lens gives wide angle viewing
- Low Current-only 2 mA
- Built-in resistor chip-operates directly off 5 volt supply without external resistor

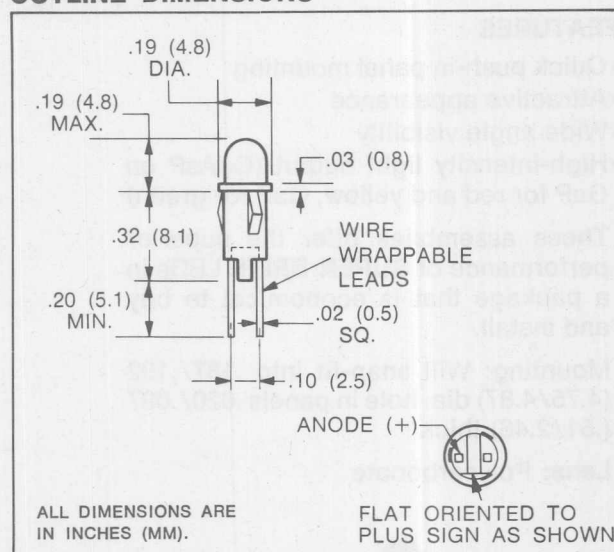


Mounting: Will snap-fit in .155/.158 (3.94/4.01) dia. hole in panels .031/.062 (.79/1.58) thick†

Terminals: .02 (0.5) Sq.

Housing: Black Nylon

OUTLINE DIMENSIONS



† We recommend using an installation tool to press against flange of housing rather than LED.

Alternate LEDs are also available in this package as standard variations.

SPECIFICATIONS	COLOR	TYPICAL INTENSITY	RATED CURRENT	CONTINUOUS FORWARD CURRENT-MAX	FORWARD VOLTAGE TYP.	FORWARD VOLTAGE MAX.	PEAK FORWARD CURRENT AT 1 MS-300PPS	REVERSE BREAKDOWN VOLTAGE MIN.	PEAK WAVE LENGTH	FOR MORE COMPLETE LED DATA
MODEL NO.		mcd	mA	mA	V	V	A	V	nm	PAGE
5111F1	RED	6	10	30	2.0	3.0	1.0	5	635	3-19
5111F3	AMB	5	10	25	2.0	3.0	.09	5	603	3-19
5111F5	GRN	12	20	30	2.2	3.0	.09	5	562	3-19
5111F7	YEL	20	20	30	2.1	3.0	1.0	5	585	3-19
5111F1LC	RED	1.8	2	7	1.8	2.2	.007	5	635	3-16
5111F5LC	GRN	1.6	1	7	1.8	2.2	.007	5	565	3-16
5111F7LC	YEL	1.8	2	7	1.9	2.7	.007	5	583	3-16
5111F1-5V	RED	5.5	10	15	5	7.5	—	5	635	3-18
5111F3-5V	AMB	7	10	15	5	7.5	—	5	583	3-18
5111F5-5V	GRN	10	12	15	5	7.5	—	5	565	3-18

LOW
CURRENT
BUILT-IN
RESISTOR
5 VOLTS

SERIES 5200F

FEATURES

- Quick push-in panel mounting
- Attractive appearance
- Wide angle visibility
- High-intensity light output (GaAsP on GaP for red and yellow, GaP for green)

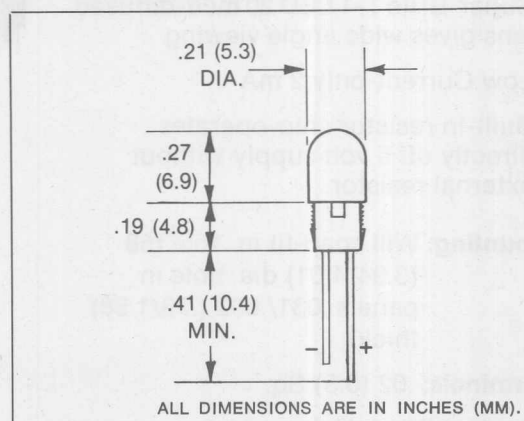
These assemblies offer the superior performance of **SUPER BRITE** LEDs in a package that is economical to buy and install.

Mounting: Will snap-fit into .187/.192 (4.75/4.87) dia. hole in panels .020/.097 (.51/2.46) thick

Lens: Polycarbonate



OUTLINE DIMENSIONS





PANEL MOUNTED INDICATOR LIGHT

WIRE LEADS
3/16" DIA. MOUNTING HOLE

RED
GREEN
YELLOW
BLUE

SERIES 5210F

FEATURES

This is an insulated lead version of the 5200F Series Sub-miniature **SUPER BRITE** LED assembly that offers superior performance in a package that is economical to buy and install. This series gives protection against static discharge.

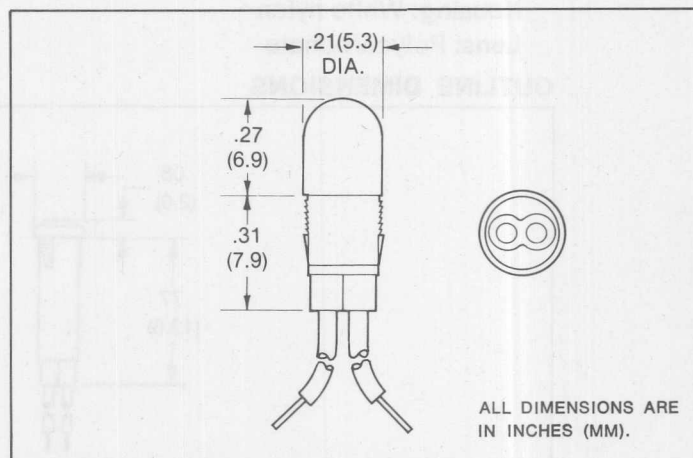
Mounting: Will snap-fit into .187/.192 (4.75/4.87) dia. hole in panel .020/.097 (.51/2.46) thick

Wire Leads: No. 26 AWG, 4.4/4.8 (111.8/121.9) long stripped: .18/.32 (4.6/8.1)

Anode (+): Red lead

Lens: Polycarbonate

Housing: Polycarbonate



Alternate LEDs are also available in this package as standard variations.

SPECIFICATIONS	COLOR	TYPICAL INTENSITY	RATED CURRENT	CONTINUOUS FORWARD CURRENT-MAX	FORWARD VOLTAGE TYP.	FORWARD VOLTAGE MAX.	PEAK FORWARD CURRENT AT 1ms-300 PPS	REVERSE BREAKDOWN VOLTAGE MIN.	FOR MORE COMPLETE LED DATA
MODEL NO.		mcd	mA	mA	V	V	A	V	PAGE
5210F1	RED	6.0	10	30	2.0	3.0	1.0	5	3-19
5210F5	GRN	12.0	20	30	2.2	3.0	.09	5	3-19
5210F7	YEL	20.0	20	30	2.1	3.0	1.0	5	3-19
5211F6-5V	BLUE	(USES #680 LAMP INCANDESCENT 200,000 HOURS, 5V .06A)							



PANEL MOUNTED LED INDICATOR WITH WIRE LEADS 7/32" MOUNTING HOLE

RED
GREEN
YELLOW
BLUE

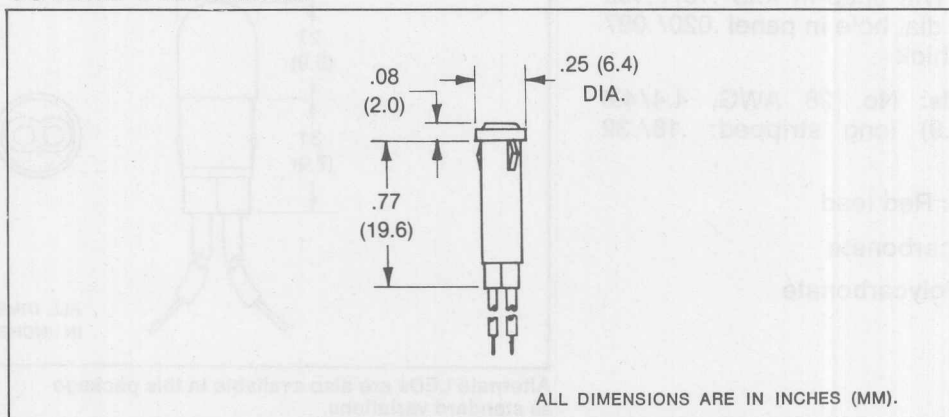
SERIES 3990A

FEATURES

- Mounting:** Will snap-fit into .217/.221 (5.51/5.61) dia. hole in panels .031/.062 (.79/1.58) thick
- Wire Leads:** No. 24 AWG, 4.4/4.8 (112/122.9) long, stripped .43/.57 (10.9/14.5)
- Anode(+):** Red lead
- Housing:** White nylon
- Lens:** Polycarbonate



OUTLINE DIMENSIONS



Alternate LEDs are also available in this package as standard variations.

* #680 Lamp (5V, .06 A 200,000 hrs life) Incandescent

SPECIFICATIONS	COLOR	TYPICAL INTENSITY	RATED CURRENT	CONTINUOUS FORWARD CURRENT	FORWARD VOLTAGE TYP.	FORWARD VOLTAGE MAX.	PEAK FORWARD CURRENT AT 1ms-300 PPS	REVERSE BREAKDOWN VOLTAGE MIN.	FOR MORE COMPLETE LED DATA
MODEL NO.		mcd	mA	mA	V	V	A	V	PAGE
3990A1	RED	6.0	10	30	2.0	3.0	1.0	5.0	3-19
3990A3	AMBER	5.0	10	25	2.0	3.0	.09	5.0	3-19
3990A5	GREEN	12.0	20	30	2.2	3.0	.09	5.0	3-19
3990A7	YELLOW	20.0	20	30	2.1	3.0	1.0	5.0	3-19
3991A6-5V	BLUE	USE #680 INCANDESCENT LAMP-5V, .06A 200,000 HOURS							



PANEL MOUNTED LED INDICATOR LIGHT WIRE LEADS 5/16" DIA. MOUNTING HOLE

**RED
AMBER
GREEN
YELLOW**

SERIES 5400A

FEATURES

A unique design, the 5400 Series is a two-piece unit consisting of a lens and the housing-LED assembly. Simple, fast installation provided by placing the lens into mounting hole from the panel front and snapping the housing assembly onto the lens from the rear. Allows pre-wiring into the circuit and testing before installation. Has low-profile, damage-resistant lens offering static discharge protection and wide-angle viewing.

Mounting: Will snap-fit into .312/.317 (7.93/8.05) dia. hole in panel .020/.098 (0.51/2.49) thick

Wide Leads: No. 24 AWG, 4.4/4.8 (111.8/121.9) long, stripped: .43/.57 (10.9/14.5)

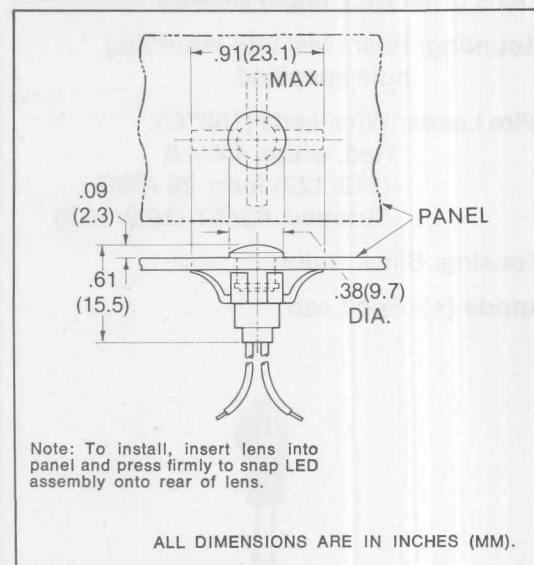
Anode (+): Red lead

Lens: Polycarbonate (page 3-37)

Housing: Natural nylon



OUTLINE DIMENSIONS



Alternate LEDs are also available in this package as standard variations.

SPECIFICATIONS	COLOR	TYPICAL INTENSITY	RATED CURRENT	CONTINUOUS FORWARD CURRENT-MAX	FORWARD VOLTAGE TYP.	FORWARD VOLTAGE MAX.	PEAK FORWARD CURRENT AT 1ms-300 PPS	REVERSE BREAKDOWN VOLTAGE MIN.	FOR MORE COMPLETE LED DATA	INCLUDES LENS MODEL NO.
MODEL NO.		mcd	mA	mA	V	V	A	V	PAGE	
5400A1	RED	120	20	35	2.0	3.0	1.0	5	3-12	4741
5400A3	AMB	120	20	35	2.0	3.0	1.0	5	3-10	4743
5400A5	GRN	120	20	20	2.1	2.5	—	4	3-12	4745
5400A7	YEL	120	20	35	2.1	3.0	1.0	5	3-12	4747



REAR PANEL MOUNTED LED INDICATOR LIGHT WITH WIRE LEADS

RED
GREEN
YELLOW

SERIES 5120F

FEATURES

- Super-Brite T-1 LED-20 mcd diffused lens gives wide angle viewing

Mounting: Rear twist into mounting hole specified

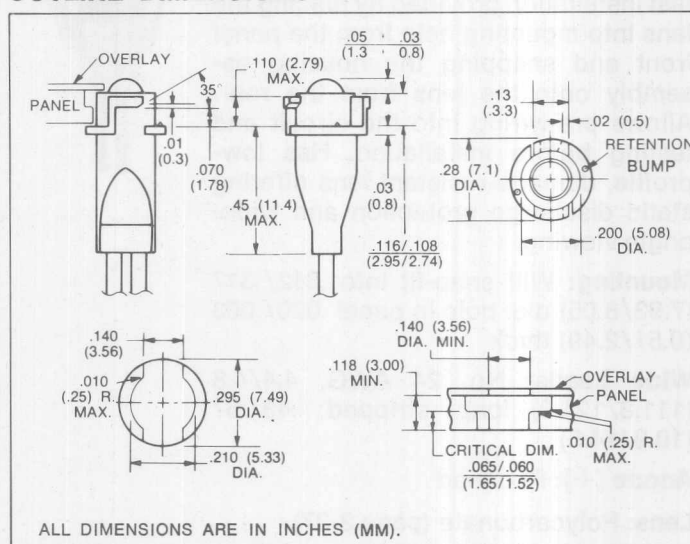
Wire Leads: Wire leads (105°C).
Red, white, 4.4/4.8
(112/122) long. 26 AWG.
Stripped .43/.57 (10.9/14.5)

Housing: Black Nylon

Anode (+): Red Lead



OUTLINE DIMENSIONS



Alternate LEDs are also available in this package as standard variations.

SPECIFICATIONS	COLOR	TYPICAL INTENSITY	RATED CURRENT	CONTINUOUS FORWARD CURRENT-MAX	FORWARD VOLTAGE TYP.	FORWARD VOLTAGE MAX.	PEAK FORWARD CURRENT AT 1ms-300 PPS	REVERSE BREAKDOWN VOLTAGE MIN.	FOR MORE COMPLETE LED DATA
MODEL NO.		mcd	mA	mA	V	V	A	V	PAGE
5120F1	RED	6	10	30	2.0	3.0	1.0	5	3-19
5120F5	GRN	12	20	30	2.2	3.0	.09	5	3-19
5120F7	YEL	20	20	30	2.1	3.0	1.0	5	3-19



NEON GLOW LAMPS

NEON GLOW LAMPS

Neon lamps are ideal for line-voltage AC as well as for 90V and up DC applications. They are rugged and long-lived; properly specified neon lamps will outlast the equipment in which they are incorporated.

IDI 4900 series neon lamps have tinned leads, and are ideal for use on printed circuit boards. Unique sizes, colors, and voltage characteristics provide a wide range of options.

Plain glass lamps include both standard brightness and high brightness types, and include a unique high-current lamp for greater light output and a unique high brightness low voltage lamp. Green, blue, and amber lamps have a phosphor coating on the inside of the glass envelope to convert the typical orange-red neon glow to other colors, and are available in both miniature and sub-miniature sizes.

A wide variety of complete panel-mounted neon indicator lights is listed in the "non-relampable" section of this catalog.

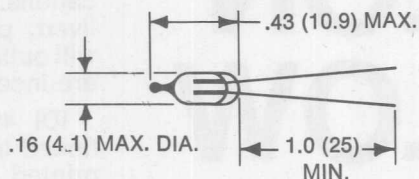
6



NEON GLOW LAMPS

MODELS 4916S1, 4916H1

OUTLINE DIMENSIONS



ALL DIMENSIONS ARE IN INCHES (MM).

MODEL NO.	LAMP TYPE	CIRCUIT VOLTAGE	MAX. FIRING VOLTAGE (NOTE 5)	TYP. MAINTAINING VOLTAGE (NOTE 6)	END OF LIFE FIRING VOLTAGE	NOMINAL CURRENT	RECOMMENDED EXT. RESISTOR FOR SHOWN CIRCUIT VOLTAGE (NOTE 4)	AVERAGE USEFUL LIFE AT RATED CURRENT (HRS) AC	COMMENTS
		(VAC)	(VAC)	(VAC)	(VAC)	(mA)	(OHMS)		
4916S1	2ML	85-125	65	40	—	0.3	150,000	25,000	Standard Brightness Sub-Miniature
4916H1	1MH	105-125	100	40	—	0.7	100,000	5,000	High Brightness Sub-Miniature

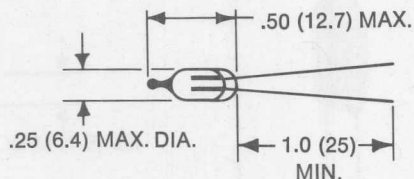
- NOTES:**
1. Leads are Tinned.
 2. DC life is 60% of AC life.
 3. All lamps must be ballasted.
 4. All lamps may be used on higher voltages with appropriate value resistor in series.
 5. Max. firing voltage when lamp is new, for high brightness lamps voltage increases as lamp ages.
 6. Voltage measured across lamp at design current.



NEON GLOW LAMPS

MODELS 4921S1, 4921H1

OUTLINE DIMENSIONS



ALL DIMENSIONS ARE IN INCHES (MM).

MODEL NO.	LAMP TYPE	CIRCUIT VOLTAGE	MAX. FIRING VOLTAGE (NOTE 5)	TYP. MAINTAINING VOLTAGE (NOTE 6)	END OF LIFE FIRING VOLTAGE	NOMINAL CURRENT	RECOMMENDED EXT. RESISTOR FOR SHOWN CIRCUIT VOLTAGE (NOTE 4)	AVERAGE USEFUL LIFE AT RATED CURRENT (HRS) AC	COMMENTS
		(VAC)	(VAC)	(VAC)	(VAC)	(mA)	(OHMS)		
4921S1	A1B	75-125	65	40	—	0.3	220,000	25,000	Standard Brightness Miniature
4921H1	A1C	105-125	95	50	—	1.2	47,000	25,000	High Brightness Miniature

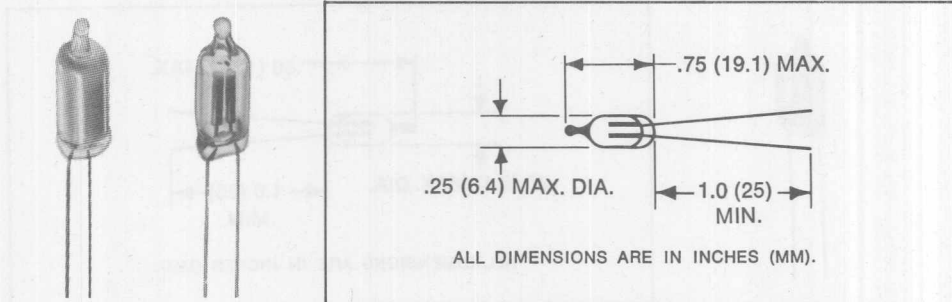
- NOTES:**
1. Leads are Tinned.
 2. DC life is 60% of AC life.
 3. All lamps must be ballasted.
 4. All lamps may be used on higher voltages with appropriate value resistor in series.
 5. Max. firing voltage when lamp is new, for high brightness lamps voltage increases as lamp ages.
 6. Voltage measured across lamp at design current.



NEON GLOW LAMPS

MODELS 4925H1, 4925H5, 4925H6, 4925S1

OUTLINE DIMENSIONS



MODEL NO.	LAMP TYPE	CIRCUIT VOLTAGE	MAX. FIRING VOLTAGE (NOTE 5)	TYP. MAINTAINING VOLTAGE (NOTE 6)	END OF LIFE FIRING VOLTAGE	NOMINAL CURRENT	RECOMMENDED EXT. RESISTOR FOR SHOWN CIRCUIT VOLTAGE (NOTE 4)	AVERAGE USEFUL LIFE AT RATED CURRENT (HRS) AC	COMMENTS
		(VAC)	(VAC)	(VAC)	(VAC)	(mA)	(OHMS)		
4925H1	C2A	105-125	95	65	—	1.9	30,000	25,000	High Brightness
4925H5	G2B	95-120	95	40	—	1.6	36,000	20,000	Green
4925H6	T2B	95-120	95	40	—	1.6	36,000	20,000	Blue
4925S1	A9A	75-125	65	40	—	0.7	100,000	10,000	Standard Brightness

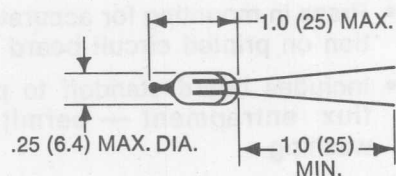
- NOTES:**
1. Leads are Tinned.
 2. DC life is 60% of AC life.
 3. All lamps must be ballasted.
 4. All lamps may be used on higher voltages with appropriate value resistor in series.
 5. Max. firing voltage when lamp is new, for high brightness lamps voltage increases as lamp ages.
 6. Voltage measured across lamp at design current.



NEON GLOW LAMPS

MODELS 4926H1

OUTLINE DIMENSIONS



ALL DIMENSIONS ARE IN INCHES (MM).

MODEL NO.	LAMP TYPE	CIRCUIT VOLTAGE	MAX. FIRING VOLTAGE (NOTE 5)	TYP. MAINTAINING VOLTAGE (NOTE 6)	END OF LIFE FIRING VOLTAGE	NOMINAL CURRENT	RECOMMENDED EXT. RESISTOR FOR SHOWN CIRCUIT VOLTAGE (NOTE 4)	AVERAGE USEFUL LIFE AT RATED CURRENT (HRS) AC	COMMENTS
		(VAC)	(VAC)	(VAC)	(VAC)	(mA)	(OHMS)		
4926H1	C6A	105-125	95	50	—	2.0	18,000	10,000	Long Electrode High Brightness

- NOTES:**
1. Leads are Tinned.
 2. DC life is 60% of AC life.
 3. All lamps must be ballasted.
 4. All lamps may be used on higher voltages with appropriate value resistor in series.
 5. Max. firing voltage when lamp is new, for high brightness lamps voltage increases as lamp ages.
 6. Voltage measured across lamp at design current.



PC BOARD MOUNTED NEON

MODELS 5314N1, 5314N2

Board Mounted Neon Lamp

- Easy to mount
- Press in mounting for accurate location on printed circuit board
- Includes board standoff to prevent flux entrapment — permit easy washing

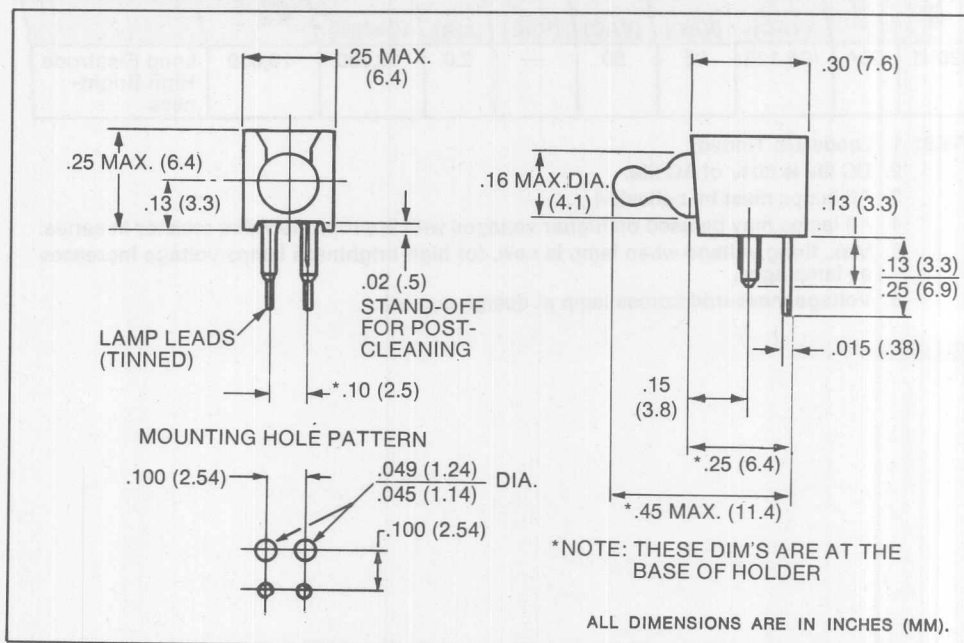


FEATURES Housing: Black nylon

Lamp:

LAMP MODEL	INCORPORATES LAMP NO.	
5314N1 5314N2	4916H1 4916S1	SEE PAGE 6-2 FOR COMPLETE LAMP SPECIFICATIONS

OUTLINE DIMENSIONS





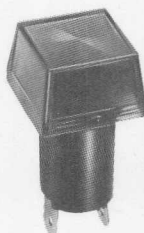
RELAMPABLE INTRODUCTION

Relampable

INDICATOR LIGHTS

IDI offers two lines of relampable sockets and light assemblies — TINY-MITE and MINI-SLIDE — each designed to best utilize a different type of lamp.

The IDI TINY-MITE series of sockets and pilot light assemblies was designed around the sub-miniature wedge base lamp (T-1 $\frac{3}{4}$). The ruggedness and reliability of wedge base design has been proved by the annual use of hundreds of millions of wedge base lamps. The design is economical because the base is formed from the glass of the bulb and the lead in the wire — there are no separate parts or extra welded connections. Made on high-speed automatic equipment, wedge base lamps cost much less than equivalent flange base or bi-pin lamps.





RELAMPABLE INTRODUCTION

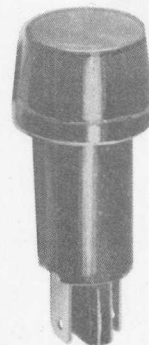
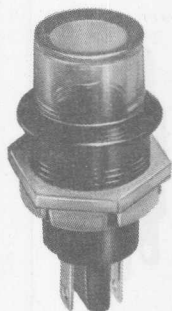
Thirteen different lamps are presently available with voltage ratings ranging from 2.5 volts to 28 volts.

These new lamps present unusual opportunities as well as intriguing challenges to the socket designer. IDI has met the challenge with a unique contact-socket which holds the lamp firmly and makes assured contact, yet does not inhibit lamp removal. The unique IDI socket construction takes full advantage of the space and cost economies of the sub-miniature wedge base lamp.

MINI-SLIDE pilot light assemblies, individual sockets, and multi-strips utilize miniature slide-base incandescent lamps. These convenient high intensity lamps are energized by means of nickel-plated contacts set inside the socket. The lamps are extremely long-lived and can be

supplied in a range of voltages from 4 volts to 120 volts and ratings up to three watts. Lamps are available in two lengths — the shorter "Indicator" lamps and the longer "Pilot" lamps.

Attractive on or off, MINI-SLIDE pilot lights are easy to install with push-on speednut mounting. Connection can be made by soldering, or with quick-connect receptacles. In case of lamp failure, it is easy to unscrew or snap off the lens, depending on the model. There is never any need to use tools or go behind a panel for bulb replacement. Bright, highly visible MINI-SLIDE pilot lights are available in a wide variety of colors. IDI also offers color end caps for use with MINI-SLIDE sockets.





RELAMPABLE SUB-MINIATURE WEDGE-BASE LAMPS

SUB-MINIATURE (T-1^{3/4}) WEDGE-BASE LAMPS

- FEATURES**
- Attractive
 - Compact
 - Easy lamp insertion and removal
 - Economical



TINY-MITE indicator light assemblies and sockets feature a unique socket construction which holds the lamp securely, makes contact reliably, and will not loosen with vibration or shock, yet permits easy lamp removal and replacement.

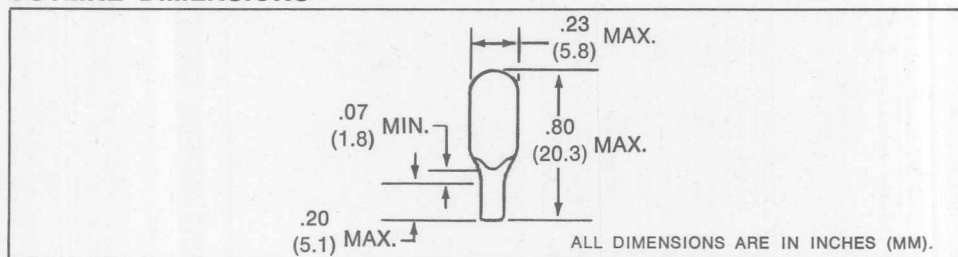
TINY-MITE 4600 Series indicator light assemblies are extremely attractive, rugged, and reliable, yet utilize minimal panel space. TINY-MITE 4100 Series sub-miniature wedge-base lamp sockets are available in both lead and solder terminal

versions, as well as in a printed circuit board version.

The ruggedness and reliability of wedge-base lamps has been proved by the annual use of hundreds of millions of units. Wedge-base design is economical because the base is formed from the glass of the bulb and lead-in wires. There are no separate parts or extra welded connections. There are 13 different lamps presently available with voltage ratings ranging from 2.5 volts to 28 volts.

LAMP NO.	DESIGN VOLTAGE	DESIGN AMFS	CANDLE POWER (APPROX.)	RATED LIFE HOURS
56	5	.115	.15	20,000
79	6	.20	.60	1,000
84	6.3	.04	.03	20,000
86	6.3	.20	.40	20,000
18	14	.04	.13	5,000
73	14	.08	.30	15,000
37	14	.09	.50	1,500
74	14	.10	.70	500
70	14	.15	1.5	100
85	28	.04	.30	7,000
17	28	.06	.65	5,000

OUTLINE DIMENSIONS





RELAMPABLE T-2 SUB-MINIATURE SLIDE-BASE LAMPS

T-2 "PILOT" LAMPS



FOR MODELS

2802

2803

3062

PAGE

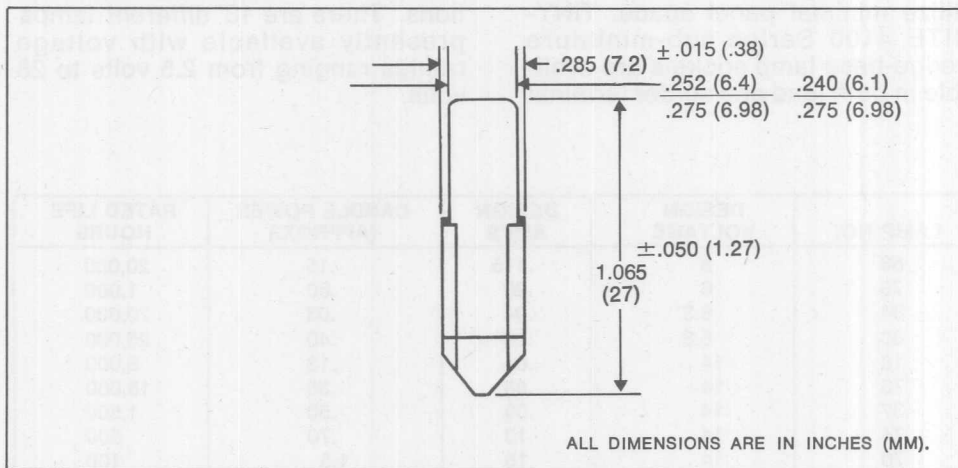
7-9

7-10

7-11

LAMP NUMBER	DESIGN VOLTS	DESIGN AMPS	RATED AVERAGE LIFE (HRS.)	WATTAGE AT DESIGN VOLTS	AVERAGE END FOOT CANDLES
5 SLB	5	.120	2,500	.6	1,600
6 PSB	6	.140	20,000	.8	500
6 SLB	6	.12	2,500	.60	1,700
12 PSB	12	.170	12,000	2.0	2,000
24 PSB	24	.073	10,000	1.7	3,000
28 PSB	28	.040	5,000	1.1	1,600
48 PSB	48	.053	7,500	2.5	1,800
60 PSB	60	.050	7,500	3.0	2,600
120 PSB	120	.025	10,000	3.0	1,200

OUTLINE DIMENSIONS





RELAMPABLE T-2 SUB-MINIATURE SLIDE-BASE LAMPS

T-2 "INDICATOR" LAMPS



FOR SOCKETS

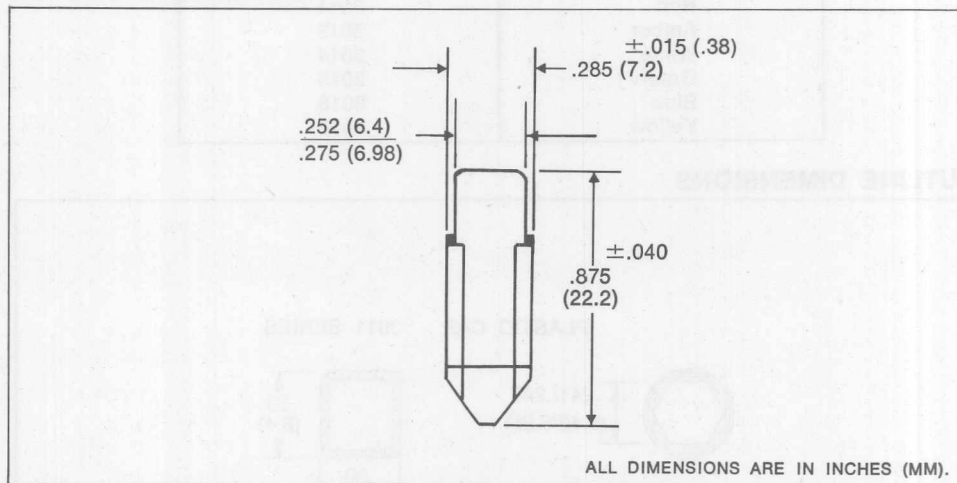
3040 3043
3041 3001

PAGE

7-11
7-24

LAMP NUMBER	DESIGN VOLTS	DESIGN AMPS	RATED AVERAGE LIFE (HRS.)	WATTAGE AT DESIGN VOLTS	AVERAGE END FOOT CANDLES
4 ESB	4	.035-.045	10,000	.2	200
5 ESB	5	.035-.045	8,000	.2	225
51 B	6	.250	5,000	1.44	2,000
6 ESB	6	.035-.045	10,000	.2	250
10 CSB	10	.015-.020	20,000	.2	60
10 ESB	10	.035-.045	10,000	.4	450
12 ESB	12	.035-.045	10,000	.4	650
14 FSB	14	.080	500	1.12	4,000
16 CSB	16	.015-.020	15,000	.3	80
16 ESB	16	.035-.045	7,500	.6	800
18 ESB	18	.035-.045	5,000	.7	850
24 CSB	24	.015-.020	15,000	.4	100
24 ESB	24	.035-.045	8,000	1.0	850
28 ESB	28	.035-.045	6,000	1.1	1,500
48 ESB	48	.035-.045	5,000	1.9	3,000

OUTLINE DIMENSIONS





END CAPS

END CAPS MOUNT DIRECTLY ONTO T-2 LAMPS

COLOR END CAP SERIES 3011, 3013 THRU 3017

FEATURES • For use with either "Indicator" or "Pilot" lamps

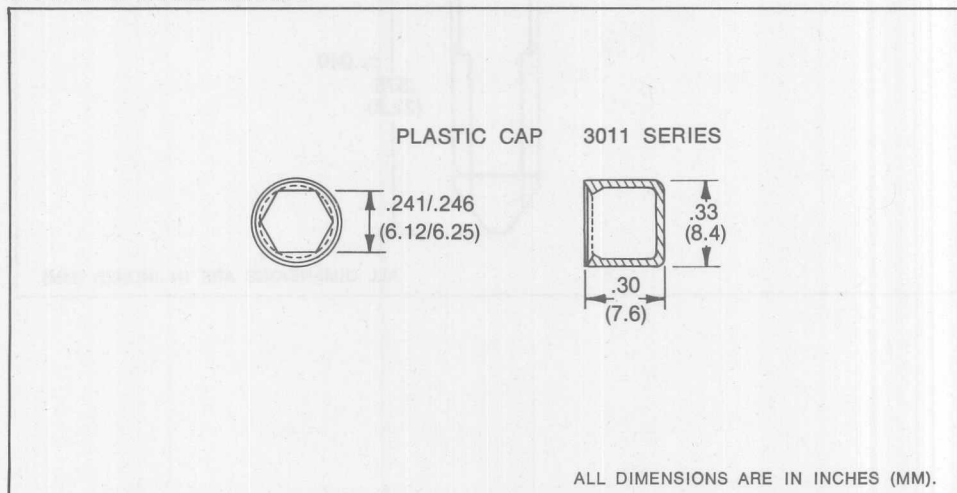
Lamps fitted with high heat polypropylene caps permit full 180° visibility, true color light, and easy color identification when lamps are off. The polypropylene plastic caps are imprintable and incorporate retaining ribs. Polypropylene caps can be used with lamps rated below 1½ watts.



Ordering Information: Caps may be ordered separately.

COLOR	PLASTIC CAP
Red	3011
Amber	3013
White	3014
Green	3015
Blue	3016
Yellow	3017

OUTLINE DIMENSIONS





RELAMPABLE INDICATOR LIGHT

USES SUB-MINIATURE WEDGE-BASE LAMPS

MODEL 4610 SOCKET

SERIES 4621 THRU 4627 & 4631 THRU 4637 LENSES

FEATURES

Ordering Information: For use with T-1 $\frac{3}{4}$ wedge-based lamps, (see page 7-3) complete assembly consists of socket (4610) lamp, and lens (see chart below). Items supplied unassembled. Lamp, lens & socket must be ordered separately.

Mounting: Model 4610 (without thread) supplied with push-on speednut SN 3486 (page 9-14) Mounting hole can be keyed to prevent rotation.

Lens: Polycarbonate — twist on, positively held

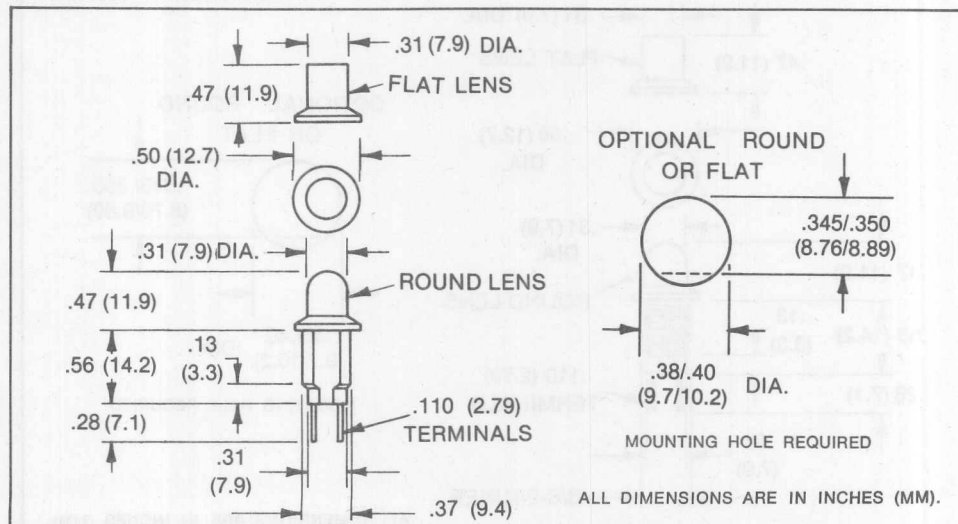
Bezel: Polished stainless steel

Socket: Black nylon



LENS COLOR TABLE		
COLOR	ROUND LENS NO.	FLAT LENS NO.
Red	4621	4631
Clear	4622	4632
Amber	4623	4633
White	4624	4634
Green	4625	4635
Blue	4626	4636
Yellow	4627	4637

OUTLINE DIMENSIONS





RELAMPABLE INDICATOR LIGHT USES SUB-MINIATURE WEDGE-BASE LAMPS

MODEL 4611 SOCKET

SERIES 4621 THRU 4627 & 4631 THRU 4637 LENSES

FEATURES

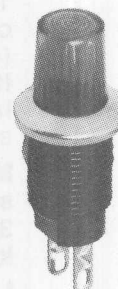
Ordering Information: For use with T-1 $\frac{3}{4}$ wedge-based lamps (see page 7-3) complete assembly consists of socket (4611) lamp, and lens (see chart below). Items supplied unassembled. Lamp, lens & socket must ordered separately.

Mounting: Model 4611 (threaded) supplied with zinc finished hex nut and internal tooth lock washer.

Lens: Polycarbonate — twist on, positively held

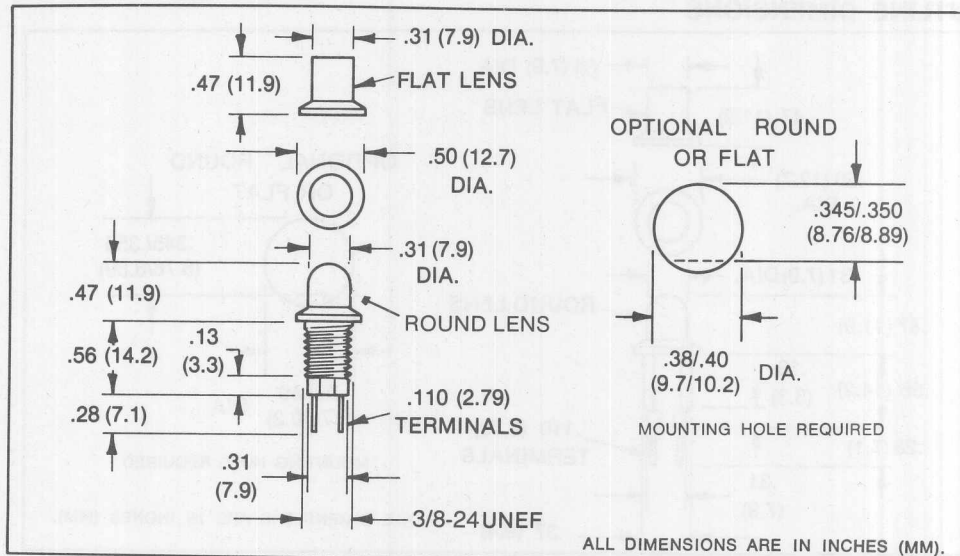
Bezel: Polished stainless steel

Socket: Black nylon



LENS COLOR TABLE		
COLOR	ROUND LENS NO.	FLAT LENS NO.
Red	4621	4631
Clear	4622	4632
Amber	4623	4633
White	4624	4634
Green	4625	4635
Blue	4626	4636
Yellow	4627	4637

OUTLINE DIMENSIONS





RELAMPABLE INCANDESCENT INDICATOR LIGHT 11/16" DIA. MOUNTING HOLE

MODEL 2802 SOCKET WITH BLACK BEZEL

SERIES 2811 THRU 2817 & 2851 THRU 2857 LENSES

FEATURES **Ordering Information:** For use with "Pilot" lamps (see page 7-4). Complete assembly consists of socket (2802), lamp, and lens (see chart below) items supplied unassembled. Lamp, lens & socket must be ordered separately.

Mounting: Supplied with polyester hex nut

Lamp: "Pilot" type

Lens: Polycarbonate — threaded

Body: Black polyester

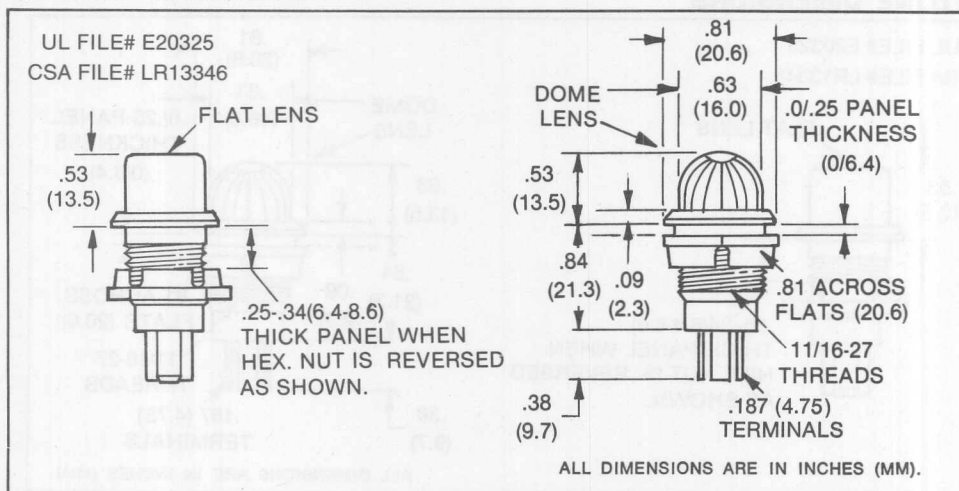
Terminals: Nickel plated brass

Bezel: Black



LENS COLOR	PART NO.	
	DOME	FLAT
Red	2811	2851
Clear	2812	2852
Amber	2813	2853
White	2814	2854
Green	2815	2855
Blue	2816	2856
Yellow	2817	2857

OUTLINE DIMENSIONS





RELAMPABLE **INCANDESCENT INDICATOR LIGHT** **11/16" DIA. MOUNTING HOLE**

MODEL 2803-SOCKET **WITH POLISHED** **STAINLESS STEEL BEZEL**

SERIES 2811 THRU 2817 & **2851 THRU 2857 LENSES**

FEATURES **Ordering Information:** For use with "Pilot" lamps (see page 7-4). Complete assembly consists of socket (2803), lamp, and lens (see chart below) items supplied unassembled. Lamp, lens & socket must be ordered separately.

Mounting: Supplied with polyester hex nut

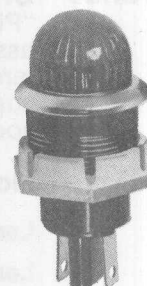
Lamp: "Pilot" type

Lens: Polycarbonate — threaded

Body: Black polyester

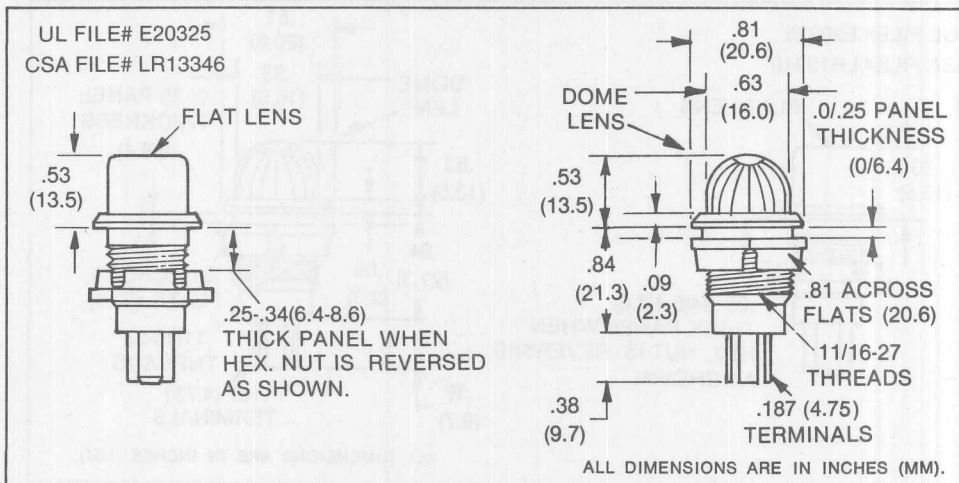
Terminals: Nickel plated brass

Bezel: Polished stainless steel



LENS COLOR	PART NO	
	DOME	FLAT
Red	2811	2851
Clear	2812	2852
Amber	2813	2853
White	2814	2854
Green	2815	2855
Blue	2816	2856
Yellow	2817	2857

OUTLINE DIMENSIONS





RELAMPABLE INCANDESCENT INDICATOR LIGHT 1/2" DIA. MOUNTING HOLE

MODEL 3040, 3043 SOCKETS

SERIES 3111 THRU 3117 & 3121 THRU 3127 LENSES

FEATURES **Ordering Information:** For use with "Indicator" lamps (see page 7-5). Complete assembly consists of socket (3040 or 3043), lamp, and lens (see chart below) items supplied unassembled. Lamp, lens & socket must be ordered separately.

Mounting: .50 (12.7) dia. hole. Supplied with push-on speednut SN0461, (see page 9-14).

Lens: Polycarbonate — snap-on

Body: Black nylon

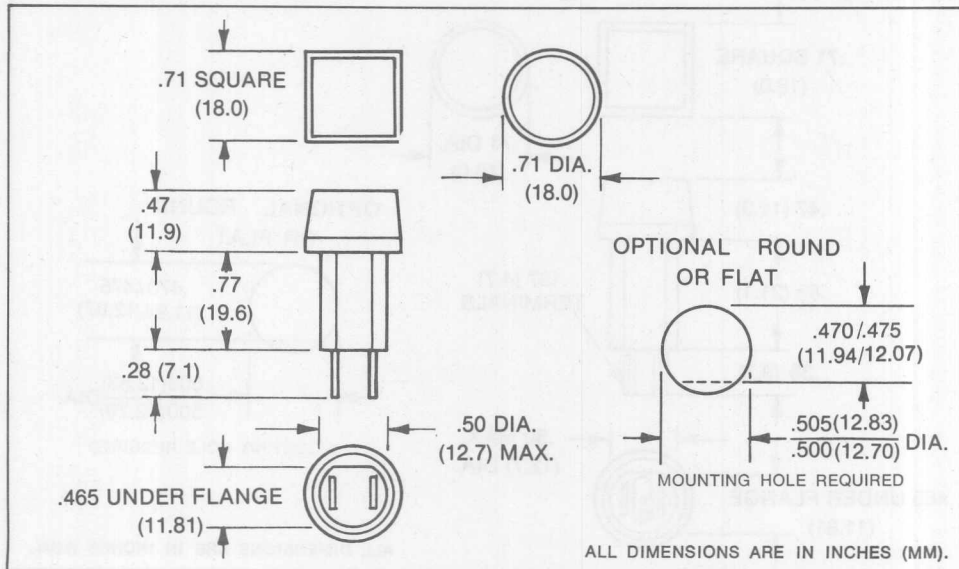
Terminals: Nickel plated brass



ROUND LENS NO.	LENS COLOR	SQUARE LENS NO.
3111	Red	3121
3112	Clear	3122
3113	Amber	3123
3114	White	3124
3115	Green	3125
3116	Blue	3126
3117	Yellow	3127

SOCKET NO.	TERMINAL SIZE
3040	.205 (5.21) Wide
3043	.187 (4.75) Wide

OUTLINE DIMENSIONS





RELAMPABLE **INCANDESCENT INDICATOR LIGHT** **1/2" DIA. MOUNTING HOLE**

MODEL 3062 SOCKET

SERIES 3111 THRU 3117 & 3121 THRU 3127 LENSES

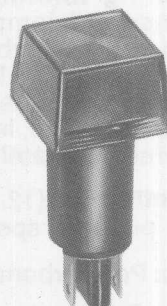
FEATURES **Ordering Information:** For use with "Pilot" lamps (see page 7-4). Complete assembly consists of socket (3062), lamp, and lens (see chart below) items supplied unassembled. Lamp, lens & socket must be ordered separately.

Mounting: .50 (12.7) dia. hole. Supplied with push-on speednut SN0461, (see page 9-14).

Lens: Polycarbonate — snap-on

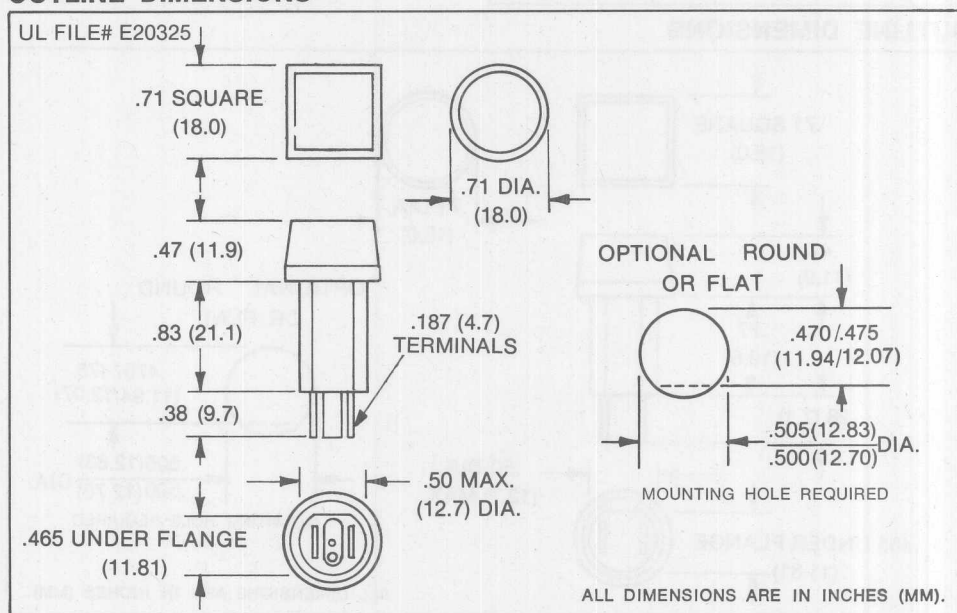
Body: Black Polyester

Terminals: Nickel plated brass



ROUND LENS NO.	LENS COLOR	SQUARE LENS NO.
3111	Red	3121
3112	Clear	3122
3113	Amber	3123
3114	White	3124
3115	Green	3125
3116	Blue	3126
3117	Yellow	3127

OUTLINE DIMENSIONS





RELAMPABLE SOCKET

USES SUB-MINIATURE WEDGE-BASE LAMPS

MODEL 4105

FEATURES

Mounting: Twist-in rear insertion panels .06 (1.5) thick.

Wire Leads: No. 20 AWG, 4.4/4.8 (111.8/121.9) long, stripped .43/.57 (10.9/14.5). Color-Black

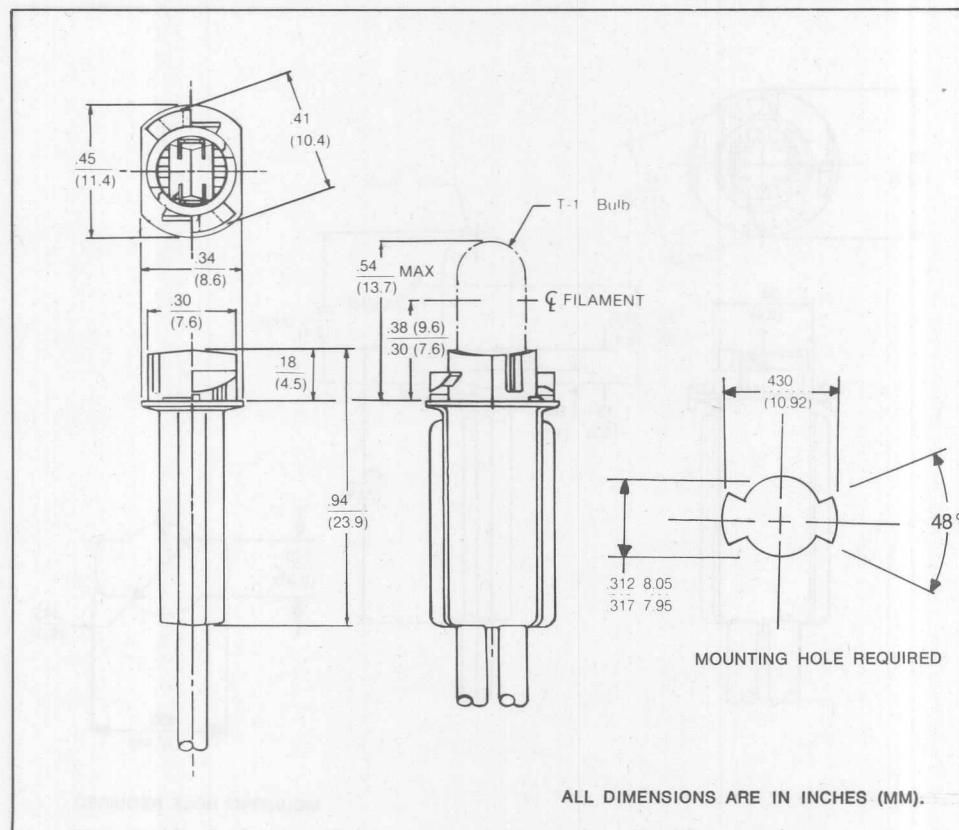
Lamp: T-1 $\frac{3}{4}$ Wedge base (see page 7-3)

Housing: Black nylon

Note: Available with other leads and/or terminals on special order. Lamps must be ordered separately.



OUTLINE DIMENSIONS





RELAMPABLE SOCKET

USES SUB-MINIATURE WEDGE-BASE LAMPS

MODEL 4106

FEATURES

Mounting: Twist-in rear insertion in .06 (1.5) thick plastic panels or .050/.055 (1.27/1.40) thick metal panels.

Wire Leads: No. 20 AWG, 4.4/4.8 (111.8/121.9) long, stripped .43/.57 (10.9/14.5). Color-black

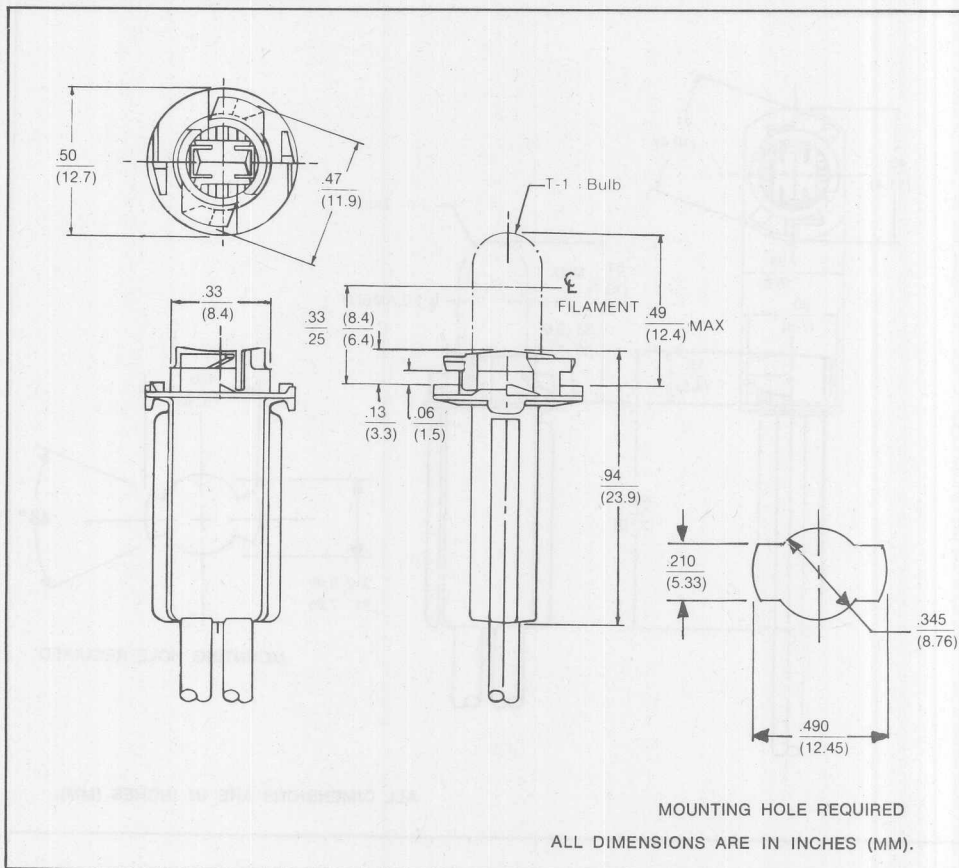
Lamp: T-1 $\frac{3}{4}$ Wedge-base (see page 7-3)

Housing: Black nylon

Note: Available with other leads and/or terminals on special order. Lamps must be ordered separately.



OUTLINE DIMENSIONS





RELAMPABLE SOCKET

USES SUB-MINIATURE WEDGE-BASE LAMPS

MODEL 4107 $\frac{5}{16}$ " DIA.

FEATURES

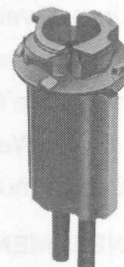
Mounting: Twist-in rear insertion in .06 (1.5) thick plastic panels or .050/.055 (1.27/1.40) thick metal panels.

Wire Leads: No. 20 AWG, 4.4/4.8 (111.8/121.9) long, stripped .43/.57 (10.9/14.5). Color-Black

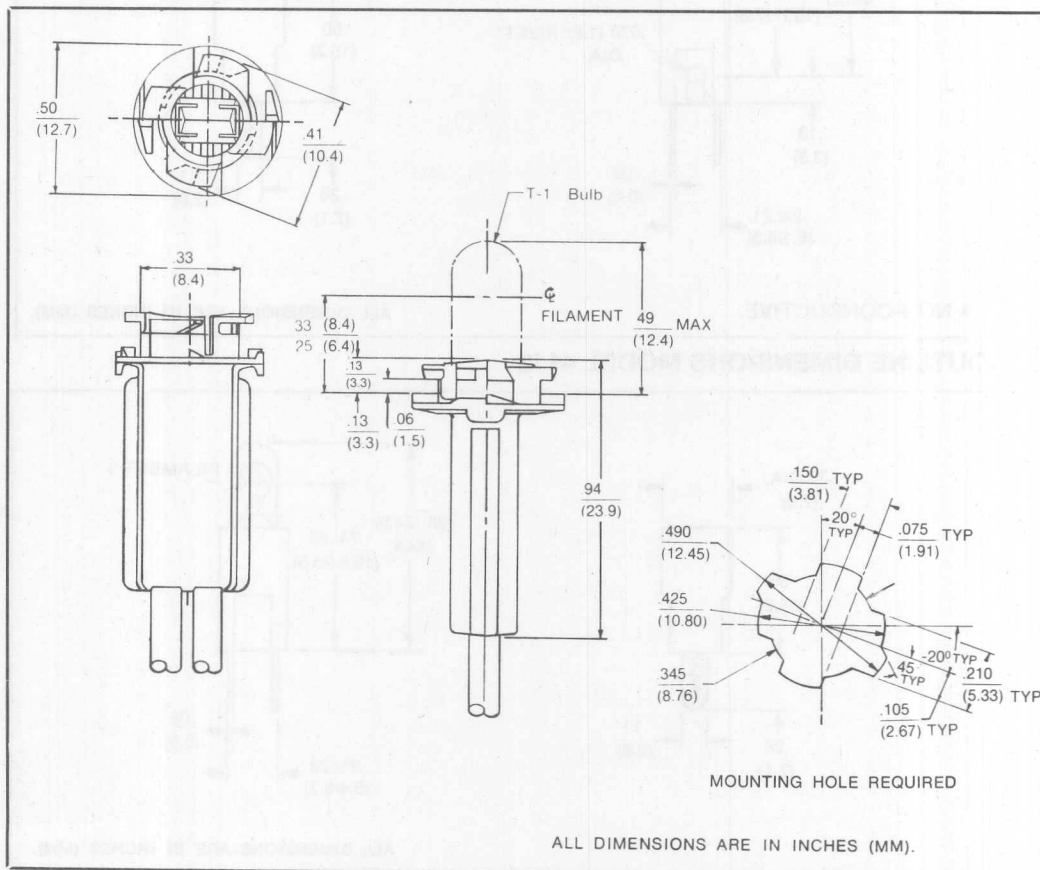
Lamp: T-1 $\frac{3}{4}$ Wedge-base (see page 7-3)

Housing: Black nylon

Note: Available with other leads and/or terminals on special order. Lamps must be ordered separately.



OUTLINE DIMENSIONS





RELAMPABLE SOCKET

USES SUB-MINIATURE WEDGE-BASE LAMPS

MODEL 4110, 4112

FEATURES

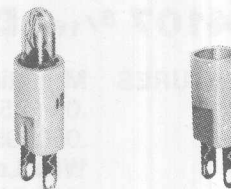
Mounting: Rivet mount. (Model 4110 only.)

Terminals: Tinned brass

Housing: White Nylon.

Lamp: T-1³/₄ Wedge-base. (see page 7-3)

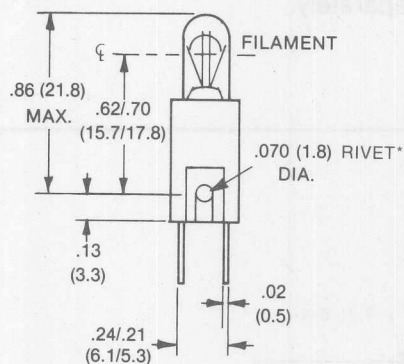
Note: Lamps must be ordered separately.



MODEL 4110

MODEL 4112

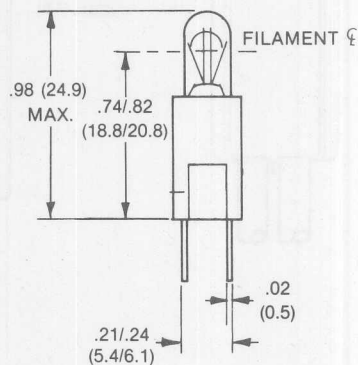
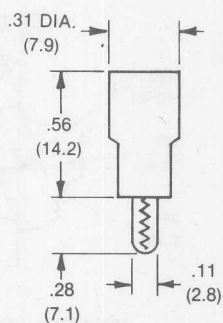
OUTLINE DIMENSIONS MODEL 4110



* NON-CONDUCTIVE

ALL DIMENSIONS ARE IN INCHES (MM).

OUTLINE DIMENSIONS MODEL 4112



ALL DIMENSIONS ARE IN INCHES (MM).



RELAMPABLE SOCKET

USES SUB-MINIATURE WEDGE-BASE LAMPS

MODEL 4111, 4113

FEATURES

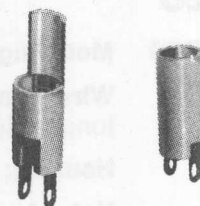
Mounting: Rivet mount. (Model 4111 only.)

Terminals: Tinned brass

Housing: White Nylon.

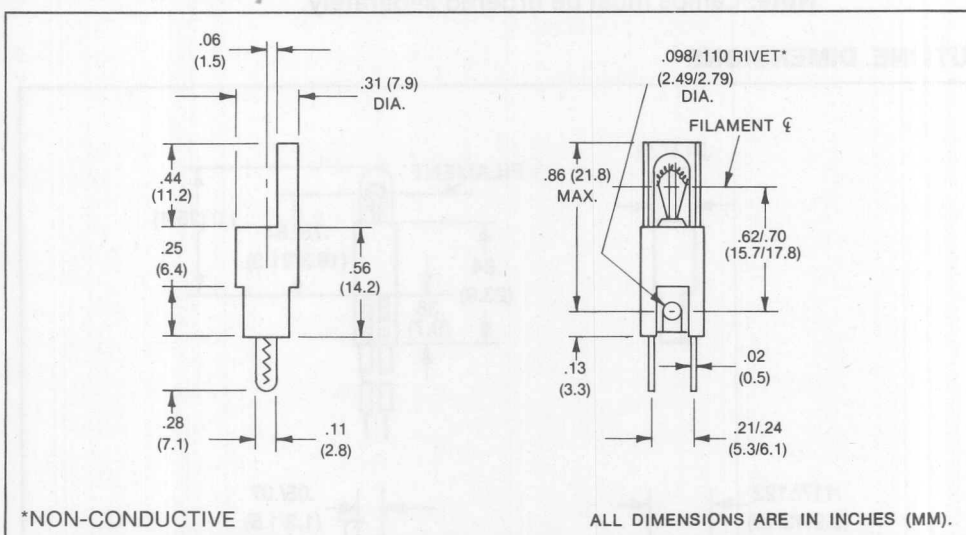
Lamp: T-1³/₄ Wedge-base. (see page 7-3)

Note: Lamps must be ordered separately.

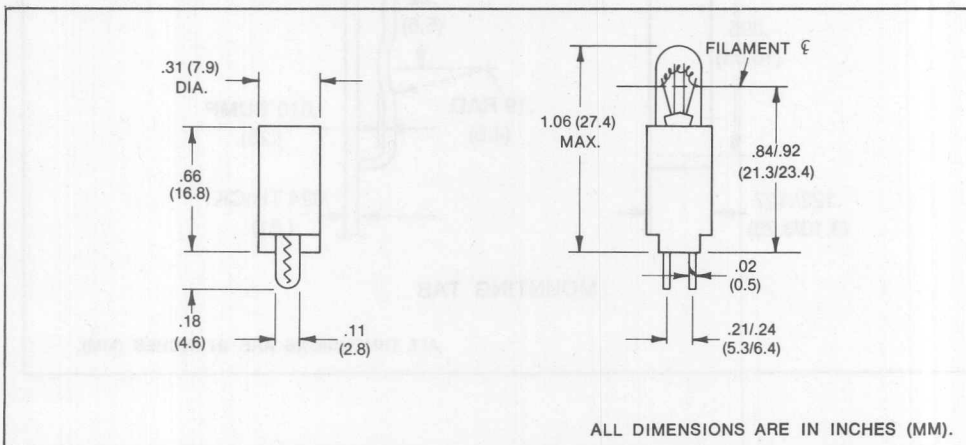


MODEL 4111 MODEL 4113

OUTLINE DIMENSIONS MODEL 4111



OUTLINE DIMENSIONS MODEL 4113





RELAMPABLE SOCKET

USES SUB-MINIATURE WEDGE-BASE LAMPS

MODEL 4120

FEATURES

Mounting: Tab mount.

Wire Leads: No. 22 AWG, 4.5 (114.3) long, stripped .5 (12.7)

Housing: White nylon

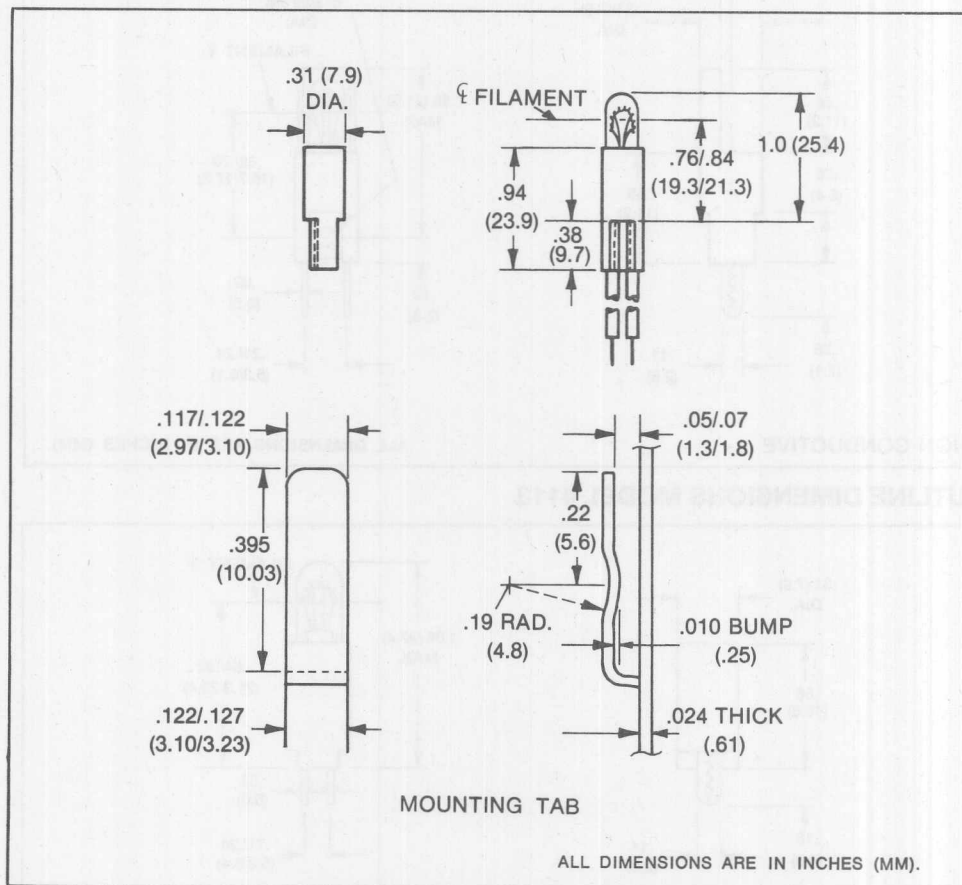
Note: Available with other leads and/or terminals on special order

Lamp: T-1 $\frac{3}{4}$ Wedge-base (see page 7-3)

Note: Lamps must be ordered separately.



OUTLINE DIMENSIONS





FEATURES **Mounting:** Printed circuit board, twist-in

Contacts: CA-688 brass

Housing: Nylon

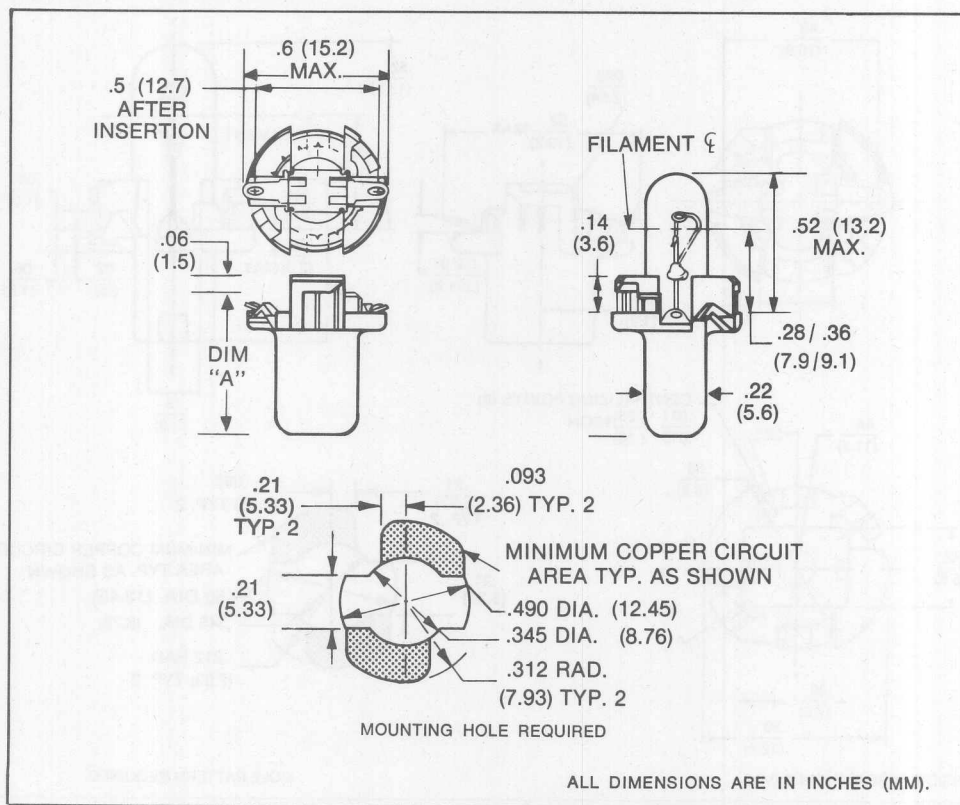
Lamp: T-1¾ Wedge-base
(see page 7-3)

Panel: 1/16" Thick

Note: Lamps must be ordered separately



OUTLINE DIMENSIONS





RELAMPABLE SOCKET

USES SUB-MINIATURE WEDGE-BASE LAMPS

MODEL 4137

FEATURES

Mounting: Printed circuit board,
twist-in.

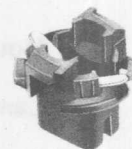
Contacts: CA-688 brass.

Housing: Black Nylon.

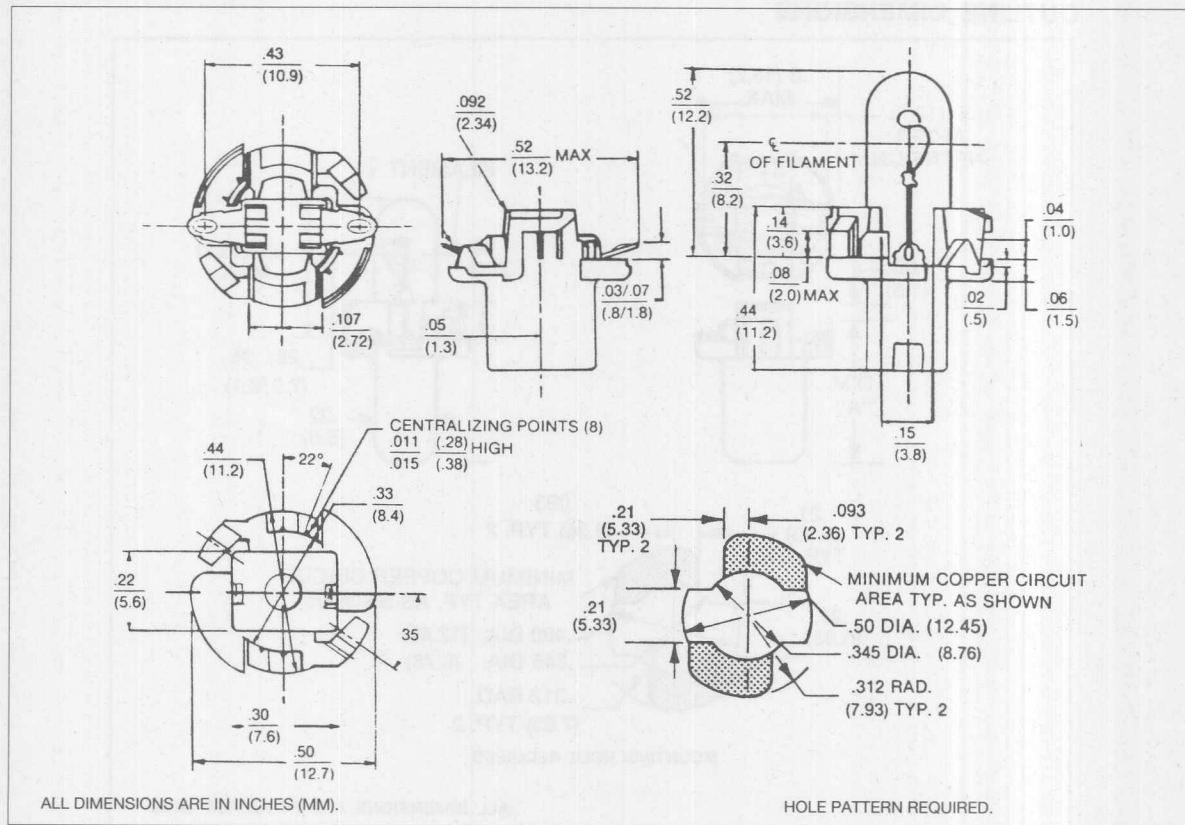
Lamp: T-1 $\frac{3}{4}$ Wedge-base
(see page 7-3)

Panel: 1/16" Thick.

Note: Lamps must be ordered
separately.



OUTLINE DIMENSIONS





RELAMPABLE SOCKET USES SUB-MINIATURE WEDGE-BASE LAMPS

MODEL 4138

FEATURES Light Shield Prevents Light Bleed.

Mounting: Printed circuit board, twist-in

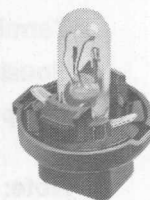
Contacts: CA-688 brass

Housing: Black nylon

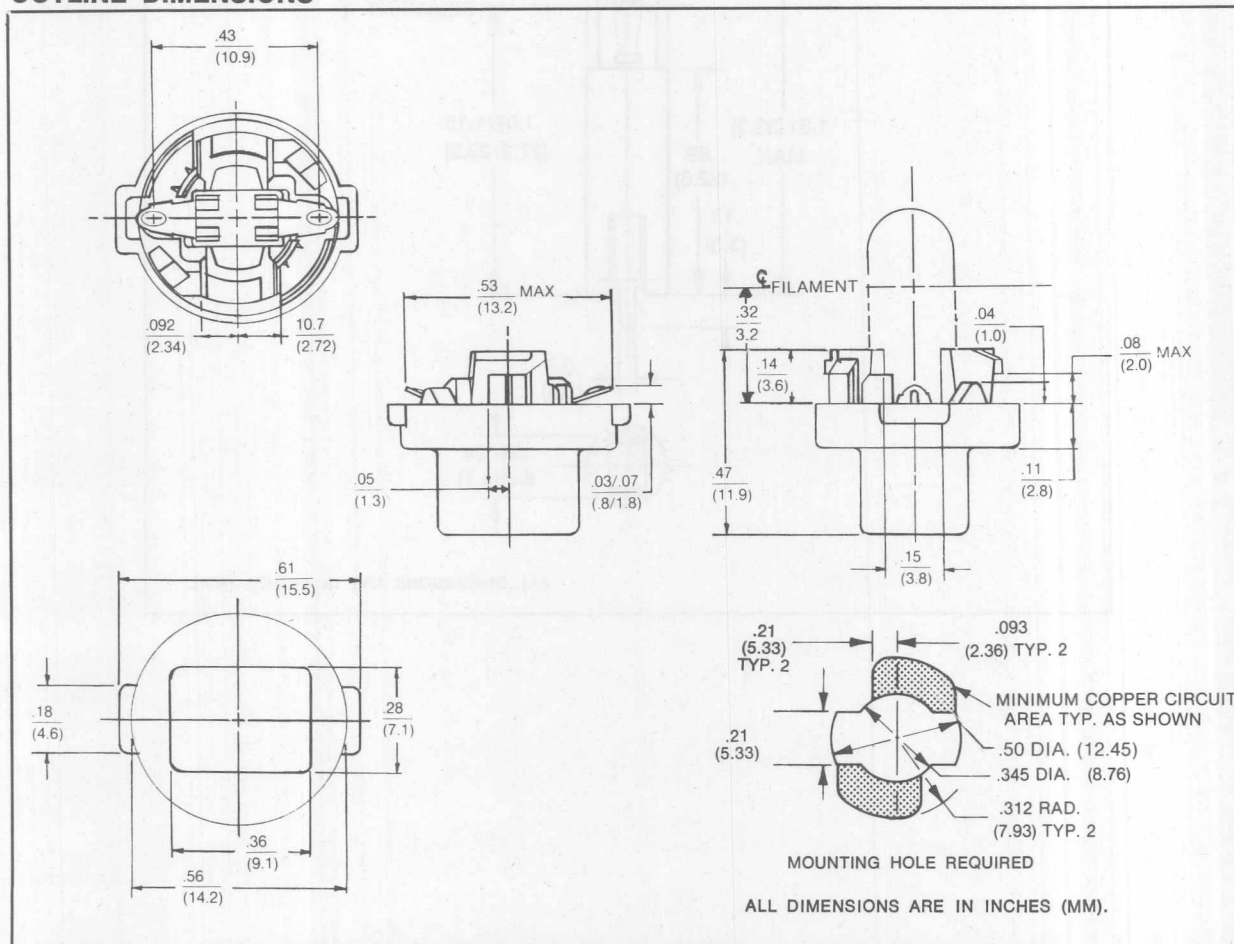
Lamp: T-1 $\frac{3}{4}$ Wedge-base
(see page 7-3)

Panel: 1/16" Thick

Note: Lamps must be ordered separately



OUTLINE DIMENSIONS





RELAMPABLE SOCKET

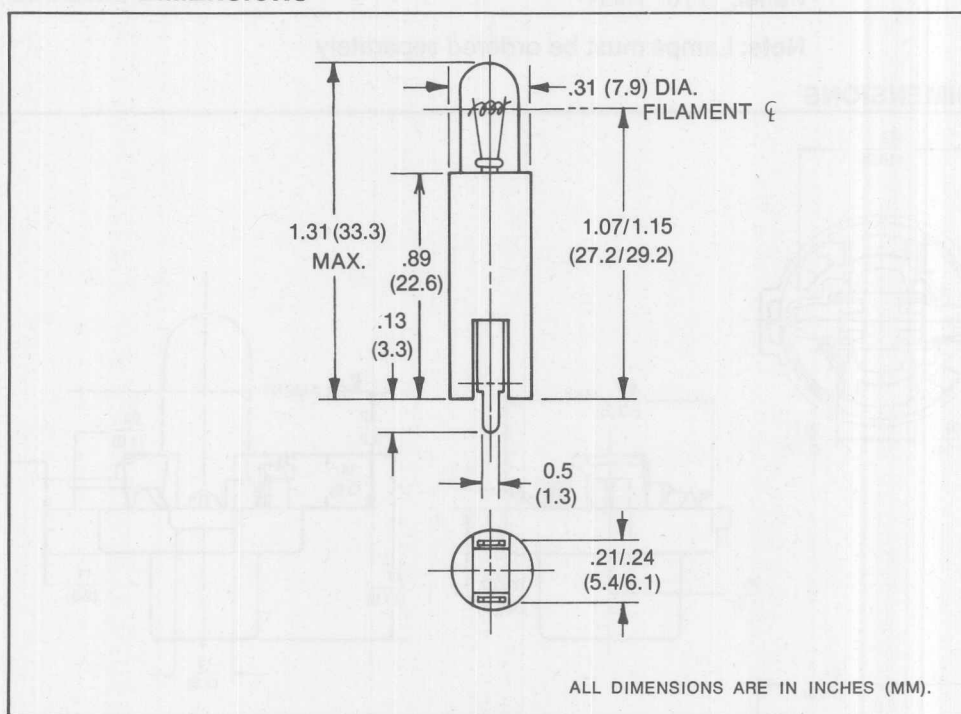
USES SUB-MINIATURE WEDGE-BASE LAMPS

MODEL 4140

- FEATURES**
- Mounting:** Printed circuit board
 - Terminals:** Tinned brass
 - Housing:** White nylon
 - Lamp:** T-1 $\frac{3}{4}$ Wedge-base
(see page 7-3)
 - Note:** Lamps must be ordered separately.



OUTLINE DIMENSIONS





RELAMPABLE SOCKET

USES SUB-MINIATURE WEDGE-BASE LAMPS

MODEL 4141

FEATURES

Mounting: Printed circuit board

Terminals: Tinned brass

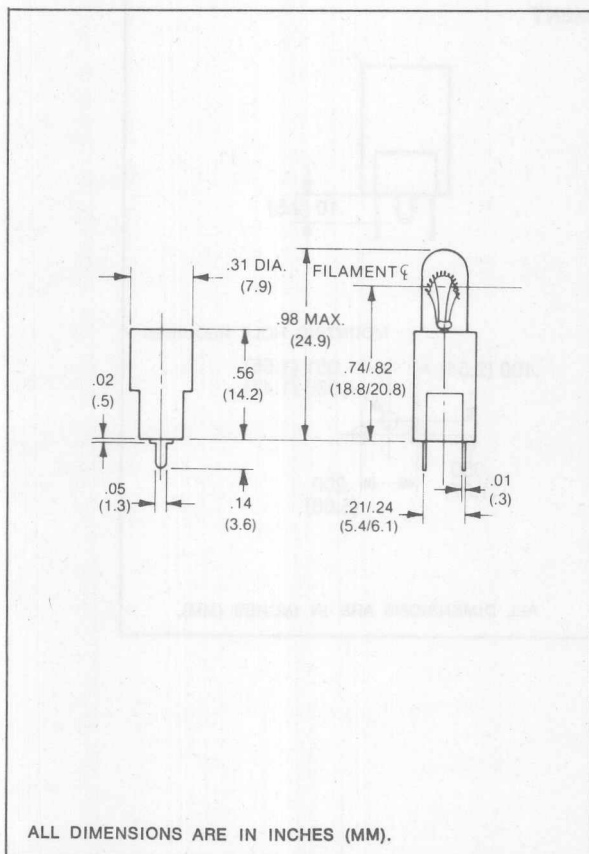
Housing: White nylon

Lamp: T-1 $\frac{3}{4}$ Wedge-base
(see page 7-3)

Note: Lamps must be ordered separately.



OUTLINE DIMENSIONS



MODEL 4142, 4142WT

FEATURES

Mounting: Printed circuit board

Terminals: Tinned brass

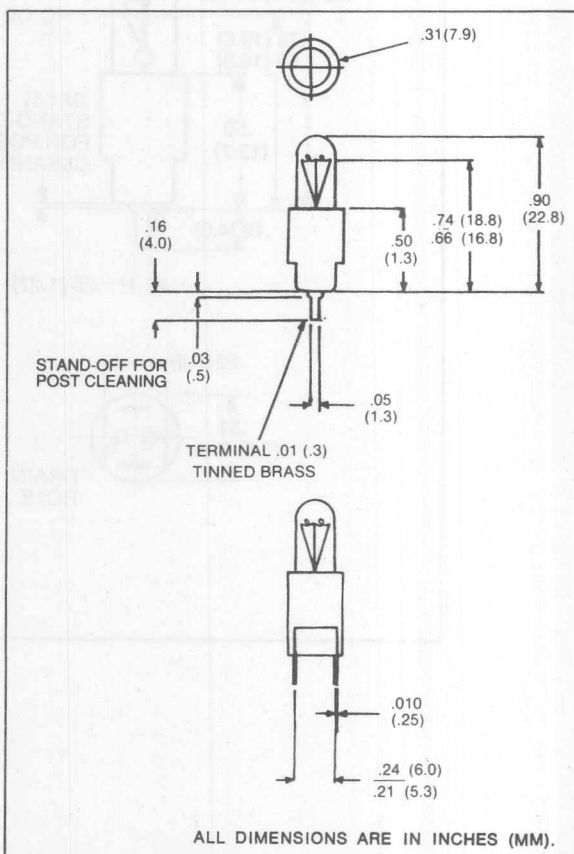
Housing: Black nylon for 4142, White nylon for 4142WT

Lamp: T-1 $\frac{3}{4}$ Wedge-base (see page 7-3)

Note: Lamps must be ordered separately.



OUTLINE DIMENSIONS





RELAMPABLE SOCKET

USES SUB-MINIATURE WEDGE-BASE LAMPS

MODEL 4144

FEATURES

Mounting: Press-in mounting for accurate location on printed circuit board

Terminals: Tinned brass

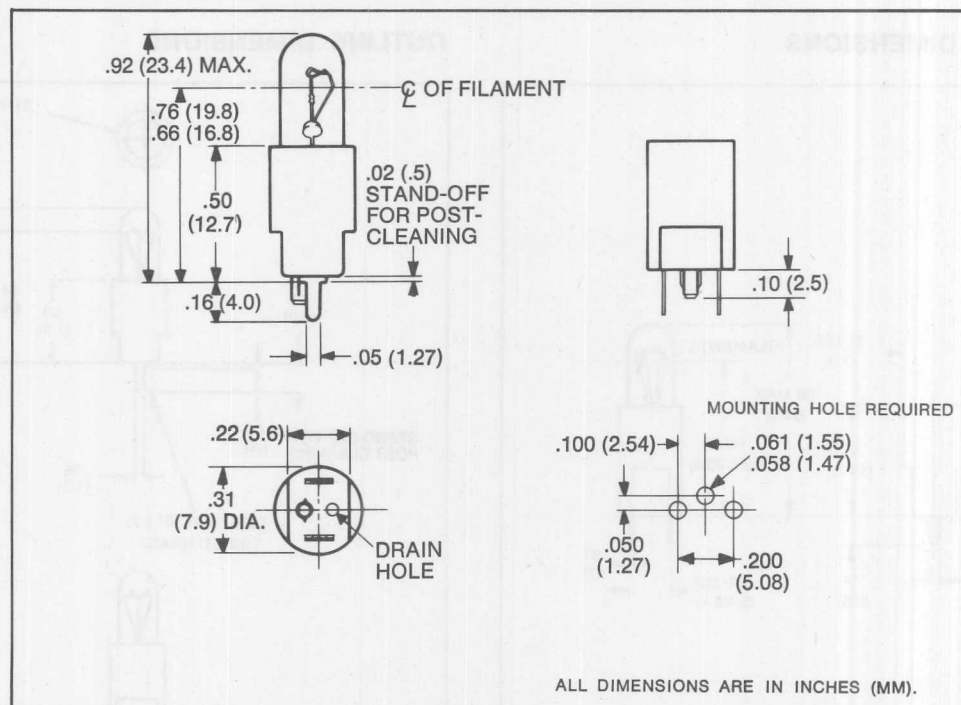
Housing: White nylon

Lamp: T-1 $\frac{3}{4}$ Wedge-base (see page 7-3)

Note: Lamps must be ordered separately.



OUTLINE DIMENSIONS





RELAMPABLE SOCKET

USES SUB-MINIATURE WEDGE-BASE LAMPS

MODELS 4150, 4150R, 4150L

FEATURES **Mounting:** Snap-on edge or center.

Terminals: Tinned brass

Housing: White nylon

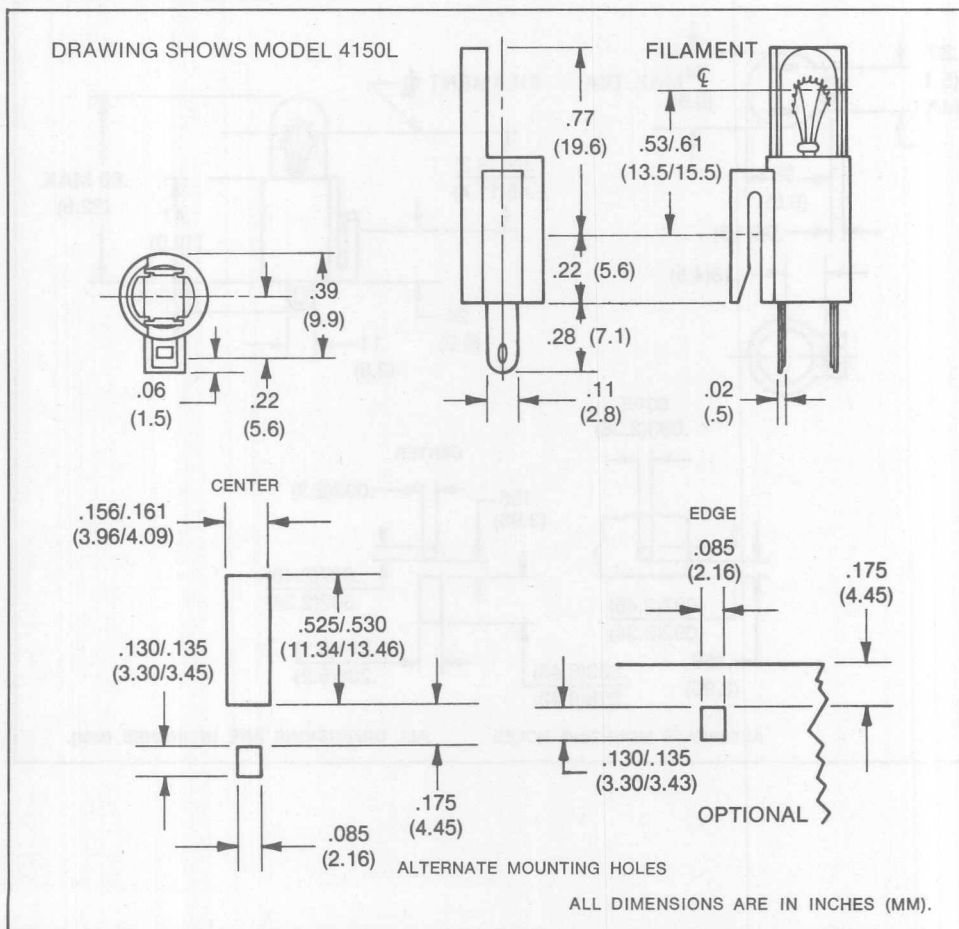
Lamp: T-1¼ Wedge-base (see page 7-3)

Note: Lamps must be ordered separately.



SOCKET NO.	LIGHT SHIELD
4150L	Left Hand
4150R	Right Hand (as shown)
4150	None

OUTLINE DIMENSIONS





RELAMPABLE SOCKET

USES SUB-MINIATURE WEDGE-BASE LAMPS

MODEL 4151

FEATURES

Mounting: Snap-on edge or center.

Terminals: Tinned brass

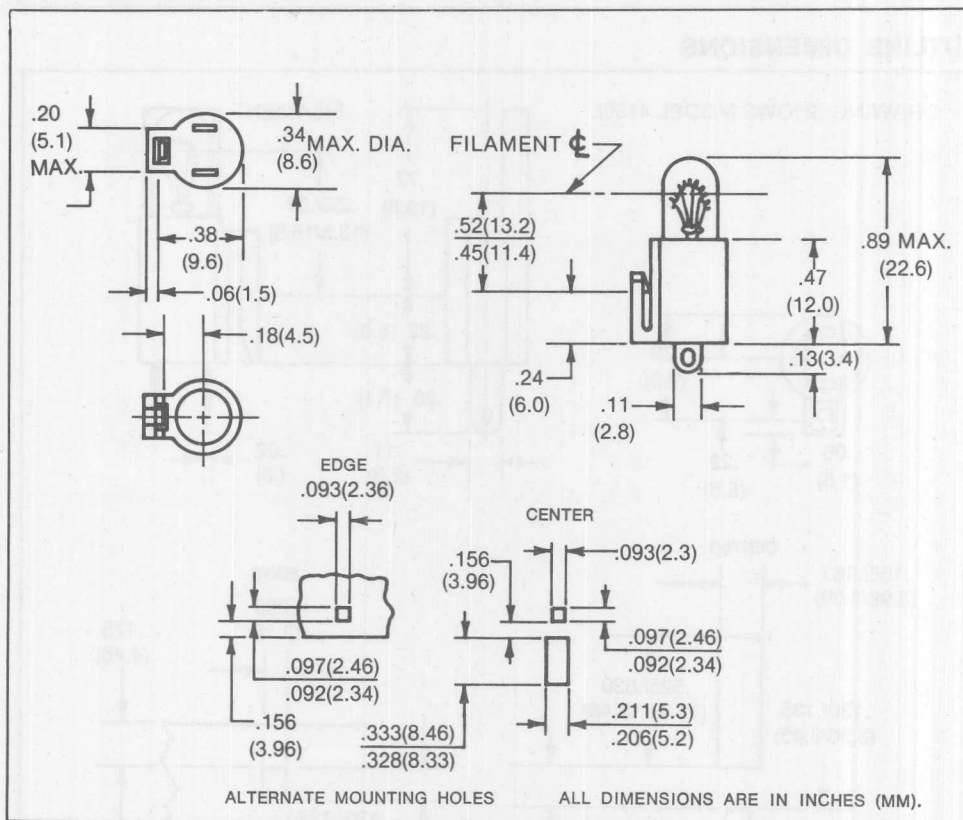
Housing: White nylon

Lamp: T-1 $\frac{3}{4}$ Wedge-base (see page 7-3)

Note: Lamps must be ordered separately.



OUTLINE DIMENSIONS





RELAMPABLE SOCKET

USES T-2 SUB-MINIATURE SLIDE-BASE LAMPS

MODELS 3001, 3041 ROUND SOCKETS

FEATURES • For use with "Indicator" Lamps (see page 7-5)

Mounting: .50 (12.7) dia. hole. Supplied with push-on speednut SN0461, (see page 9-14)

Terminals: Nickel plated brass

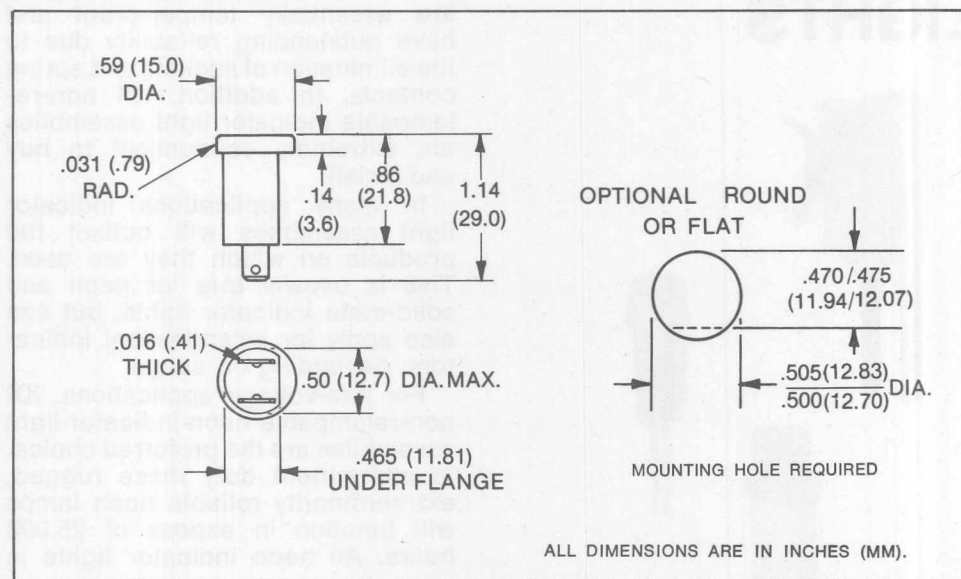
Body: Black nylon

Note: Lamps must be ordered separately.



MODEL NO.	TERMINAL SIZE
3001	.205 (5.21) Wide
3041	.187 (4.75) Wide

OUTLINE DIMENSIONS





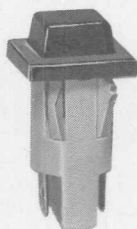
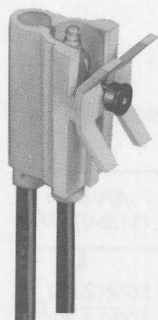
NON-RELAMPABLE INDICATOR LIGHTS INTRODUCTION

Non-Relampable INDICATOR LIGHTS

IDI non-relampable, or unit-construction, indicator light assemblies are compact and attractive. They are essentially tamper-proof and have outstanding reliability due to the elimination of sockets and spring contacts. In addition, IDI non-relampable indicator light assemblies are extremely economical to buy and install.

In many applications indicator light assemblies will outlast the products on which they are used. This is usually true for neon and solid-state indicator lights, but can also apply for incandescent indicators, depending on usage.

For line-voltage applications, IDI non-relampable neon indicator light assemblies are the preferred choice. In intermittent duty these rugged, extraordinarily reliable neon lamps will function in excess of 25,000 hours. All neon indicator lights in





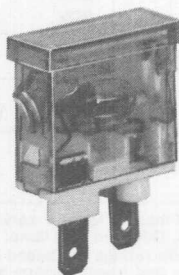
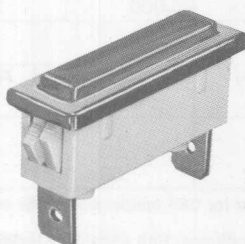
NON-RELAMPABLE INDICATOR LIGHTS INTRODUCTION

this section incorporate a resistor to limit current to less than 2 mA in 125 or 250 volt service. Where longer-than-standard life is needed, such as standby power supplies or other products where the lamp will be on all of the time, life can be extended by adding extra resistance. Order-of-magnitude increases in life can be achieved with relatively modest decreases in light output.

For low-voltage application, IDI solid-state indicator light assemblies have indefinitely long rated life and offer excellent ruggedness and reliability, when properly used in the circuit (or rectifier diode protected). Solid-state indicator lights listed in this section incorporate both appropriate current-limiting resistors and rectifier diode protection.

For low-voltage applications where higher light output is required, where wider color assort-

ment than is available with LEDs is needed, or where economy is paramount, IDI incandescent non-relampable assemblies should be considered. However, because incandescent lamps are affected by vibration, shock, and voltage transients, their lamp life ratings should not be construed as a guarantee of actual performance. Generally, the lower the voltage and higher the current the more rugged the lamp, so that 12 volt incandescent lights will usually outlast 28 volt incandescent lights, even if life ratings show the reverse. Of course, incandescent indicator lights can be used successfully and economically—IDI makes millions of non-relampable incandescent indicator light assemblies every year. We do recommend, however, that you test to be sure that the unit selected will be suitable for your application.





NON-RELAMPABLE NEON-INCANDESCENT-LED INDICATOR LIGHTS

GENERAL PURPOSE INDICATOR LIGHTS

FEATURES

- Neon models incorporate appropriate current-limiting resistors.
- Incandescent models offer a wide choice of voltages.
- Solid-state models incorporate appropriate current-limiting resistors and protective rectifier diodes.
- A choice of wire leads or quick connect terminals.
- Easy tamper-proof mounting.
- UL Recognized — CSA Approved.
- Rugged and long-lived, IDI NON-RELAMPABLE Indicator Lights usually outlast the product in which they are used. Conservatively rated, the neon lights will function an average

of 25,000 hours — and often much longer. Depending on usage, the incandescent models can also provide outstanding performance. Tamper-resistant housing and elimination of sockets and spring contacts — along with intrinsically rugged shock-proof design — all combine to provide outstanding reliability.

IDI NON-RELAMPABLE Indicator Lights are compact and economical. They take little space on your panel or behind it and make modest demands on your budget.

LAMP DATA TABLES

Neon Lamps (All High-Brightness)

LAMP NO.	INCORPORATED RESISTANCE (Ohms)		AVERAGE RATED LIFE (Hours)	
	125VAC	250VAC	125VAC	250VAC
C2A (NE-2H)	30k	100k	25,000	25,000
G2B (Green)	39k	120k	25,000	25,000
T2B(Blue)	39k	120k	25,000	25,000

Incandescent Lamps (T-1½)

NOMINAL VOLTAGE	LAMP NO.	DESIGN VOLTAGE	DESIGN AMPS	MSCP (Approx.)	RATED LIFE (Hours)*
6V	2112	6.3	.20	.55	20,000
12V	2162	14.0	.10	.50	10,000
28V	2187	28.0	.04	.30	7,000

Note: To convert 125V models to 250V service, add a 47k series resistor for C6A lamps; add a 68k series resistor for C2A, G2B and T2B lamp.

* Incandescent lamp life ratings are based on static (vibration-free) conditions. Unit should be tested in your application to assure that it will perform satisfactorily.



NON-RELAMPABLE **NEON-INCANDESCENT INDICATOR LIGHTS** **1/2" DIA. MOUNTING HOLE**

SERIES 1030D, 1031D, 1033D, 1090D

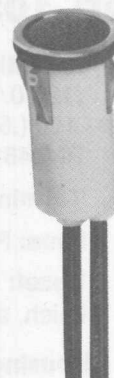
FEATURES **Mounting:** Will snap-fit into .500/.505 (12.70/12.83) dia. hole in panels .020/.100 (.51/2.54) thick. Push-on speednut SN0461, (see page 9-14) also available.

Wire Leads: No. 22 AWG (105°C), 4.4/4.8 (112/122.9) long, stripped .43/.57 (10.9/14.5)

Lens: Polycarbonate

Bezel: Polished stainless steel. For black finish, add "X" after series letter(s).

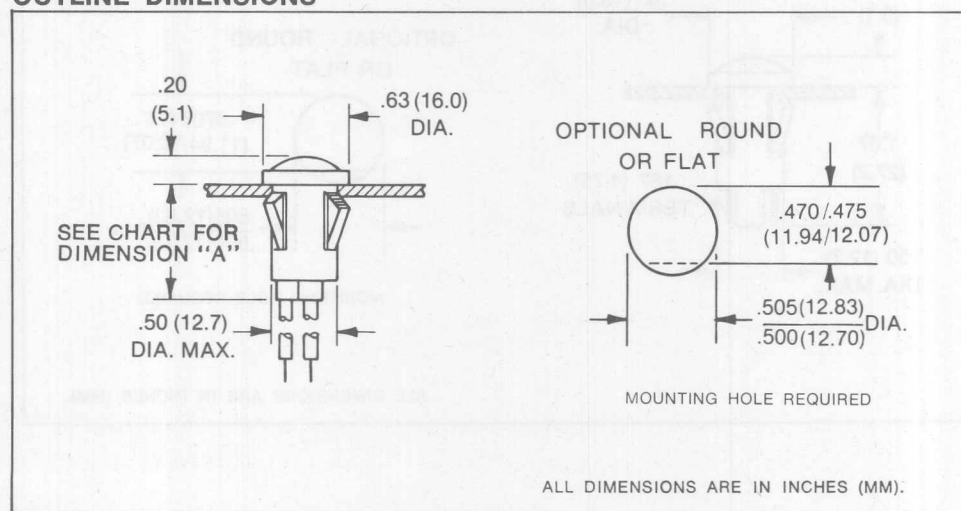
Housing: White nylon



LENS COLOR	NEON		INCANDESCENT	
	MODEL NO. 105-125VAC	MODEL NO. 208-250V	MODEL NO. 12V	MODEL NO. 28V
Red	1030D1	1031D1	1090D1-12V	1090D1-28V
Amber	1030D3	1031D3	1090D3-12V	1090D3-28V
White	1030D4	1031D4	1090D4-12V	1090D4-28V
Green	1032D5*	1033D5*	1090D5-12V	1090D5-28V
Lamp used	C2A + Resistor		#2162	#2187
Lead Color	Black	One Black/ One Red	Yellow	Purple
"A"	1.13 (28.7)	1.13 (28.7)	.91 (23.1)	.91 (23.1)

* Incorporates G2B lamp and resistor
 Underwriters Laboratories (UL) File No. E20325
 Canadian Standards Association (CSA) File No. LR13346

OUTLINE DIMENSIONS





NON-RELAMPABLE **NEON INDICATOR LIGHT** **1/2" DIA. MOUNTING HOLE**

SERIES 1030QD, 1031QD, 1032QD, 1033QD

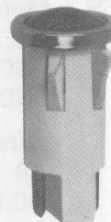
FEATURES **Mounting:** Will snap-fit into .500/.505 (12.70/12.83) dia. hole in panels .020/.100 (.51/2.54) thick. Push-on speednut SN0461, (see page 9-14) also available.

Terminals: Quick-connect, tinned brass

Lens: Polycarbonate

Bezel: Polished stainless steel. For black finish, add "X" after series letter(s).

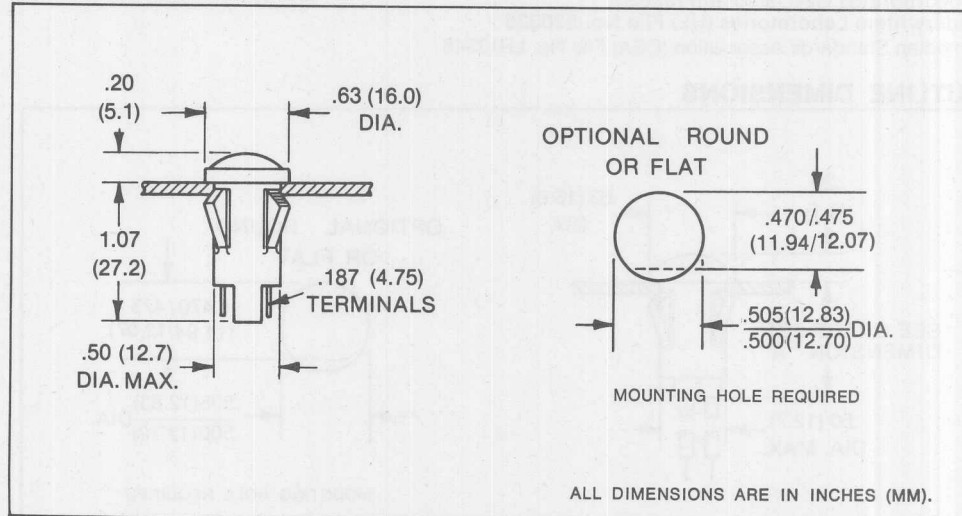
Housing: White nylon



LENS COLOR	NEON	
	MODEL NO. 105-125VAC	MODEL NO. 208-250V
Red	1030QD1	1031QD1
Amber	1030QD3	1031QD3
White	1030QD4	1031QD4
Green	1032QD5*	1033QD5*
Lamp used	C2A + Resistor	

* Incorporates G2B lamp and resistor
 Underwriters Laboratories (UL) File No. E20325 —
 Canadian Standards Association (CSA) File No. LR13346

OUTLINE DIMENSIONS





NON-RELAMPABLE **NEON-INCANDESCENT INDICATOR LIGHTS** **1/2" DIA. MOUNTING HOLE**

SERIES 1050A, 1051A, 1052A, 1053A, 1090A

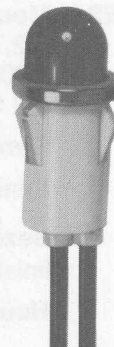
FEATURES **Mounting:** Will snap-fit into .500/.505 (12.70/12.83) dia. hole in panels .020/.100 (.51/2.54) thick. Push-on speednut SN0461, (see page 9-14) also available.

Wire Leads: No. 22 AWG (105°C), 4.4/4.8 (111.8/121.9) long, stripped .43/.57 (10.9/14.5)

Lens: Nylon on model 1050A1, 1050A3, 1050A4; 1051A1, 1051A3, 1051A4. Polycarbonate on all other models.

Bezel: Polished stainless steel. For black finish, add "X" after series letter(s).

Housing: White nylon



LENS COLOR	NEON		INCANDESCENT	
	MODEL NO. 105-125VAC	MODEL NO. 208-250V	MODEL NO. 12V	MODEL NO. 28V
Red	1050A1	1051A1	1090A1-12V	1090A1-28V
Clear	1050A2	1051A2	—	—
Amber	1050A3	1051A3	1090A3-12V	1090A3-28V
White	1050A4	1051A4	1090A4-12V	1090A4-28V
Green	1052A5*	1053A5*	1090A5-12V	1090A5-28V
Blue	1052A6†	1053A6†	1090A6-12V	1090A6-28V
Lamp used	C2A + Resistor		#2162	#2187
Lead Color	Black	One Black One Red	Yellow	Purple

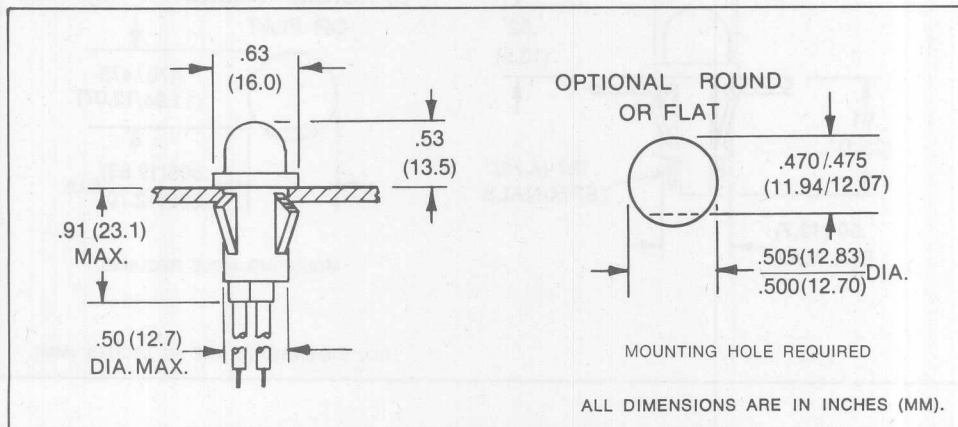
* Incorporates G2B lamp and resistor

† Incorporates T2B lamp and resistor

Underwriters Laboratories (UL) File No. E20325 —

Canadian Standards Association (CSA) File No. LR13346

OUTLINE DIMENSIONS





NON-RELAMPABLE INCANDESCENT INDICATOR LIGHT 1/2" DIA. MOUNTING HOLE

SERIES 1090QA

FEATURES **Mounting:** Will snap-fit into .500/.505 (12.70/12.83) dia. hole in panels .020/.100 (.51/2.54) thick. Push-on speed-nut SN0461, (see pg. 9-14) also available.

Terminals: Quick-connect, tinned brass

Lens: Polycarbonate

Bezel: Polished stainless steel. For black finish, add "X" after series letter(s).

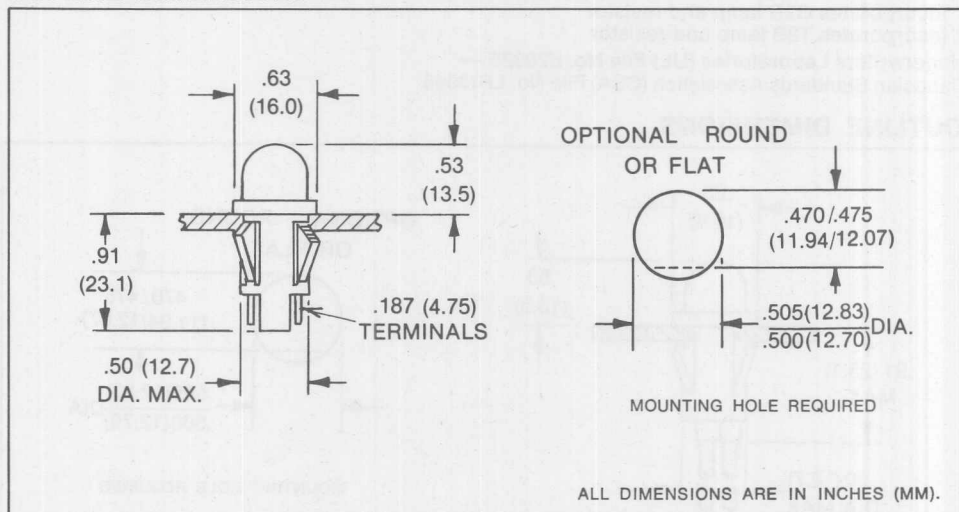
Housing: White nylon



LENS COLOR	INCANDESCENT	
	MODEL NO. 12V	MODEL NO. 28V
Red	1090QA1-12V	1090QA1-28V
Amber	1090QA3-12V	1090QA3-28V
White	1090QA4-12V	1090QA4-28V
Green	1090QA5-12V	1090QA5-28V
Blue	1090QA6-12V	1090QA6-28V
Lamp used	#2162	#2187

Underwriters Laboratories (UL) File No. E20325 —
Canadian Standards Association (CSA) File No. 13346

OUTLINE DIMENSIONS





NON-RELAMPABLE NEON INDICATOR LIGHT 1/2" DIA. MOUNTING HOLE

SERIES 1050QA, 1051QA, 1052QA, 1053QA

FEATURES **Mounting:** Will snap-fit into .500/.505 (12.70/12.83) dia. hole in panels .020/.100 (.51/2.54) thick. Push-on speed-nut SN0461, (see page 9-14) also available.

Terminals: Quick-connect, tinned brass

Lens: Polycarbonate

Bezel: Polished stainless steel. For black finish, add "X" after series letter(s).

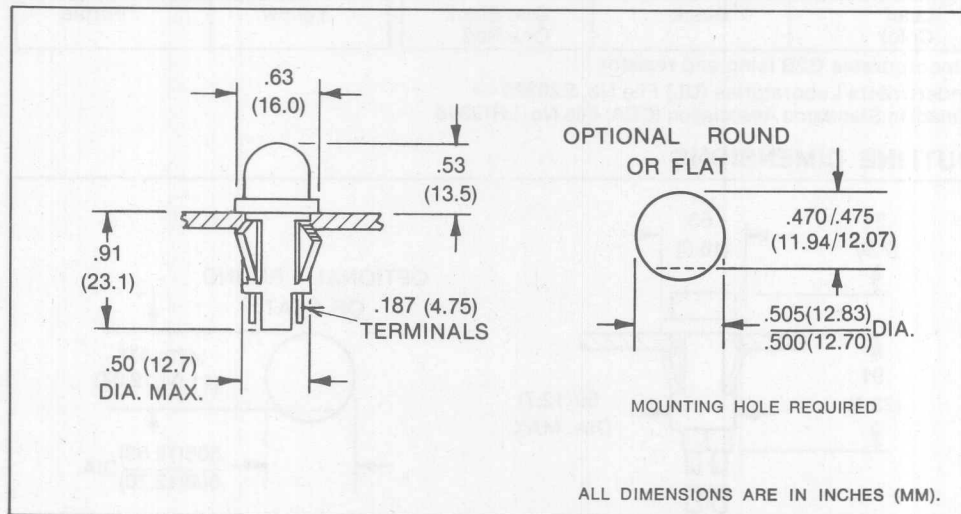
Housing: White nylon



LENS COLOR	NEON	
	MODEL NO. 105-125VAC	MODEL NO. 208-250V
Red	1050QA1	1051QA1
Clear	1050QA2	—
Amber	1050QA3	1051QA3
White	1050QA4	1051QA4
Green	1052QA5*	1053QA5*
Blue	1052QA6†	1053QA6†
Lamp	C2A + Resistor	
Quick Connect Terminals		

Underwriters Laboratories (UL) File No. E20325 —
Canadian Standards Association (CSA) File No. LR13346

OUTLINE DIMENSIONS





NON-RELAMPABLE **NEON-INCANDESCENT INDICATOR LIGHTS** **1/2" DIA. MOUNTING HOLE**

SERIES 1050C, 1051C, 1052C, 1053C, 1090C

FEATURES **Mounting:** Will snap-fit into .500/.505 (12.70/12.83) dia. hole in panels .020/.100 (.51/2.54) thick. Push-on speed-nut SN0461, (see pg.9-14) also available.

Wire Leads: No. 22 AWG (105°C), 4.4/4.8 (111.8/121.9) long, stripped .43/.57 (10.9/14.5)

Lens: Nylon on models 1050C1, 1050C3, 1050C4, 1051C1, 1051C3, 1051C4. Polycarbonate on all other models.

Bezel: Polished stainless steel. For black finish, add "X" after series letter(s).

Housing: White nylon

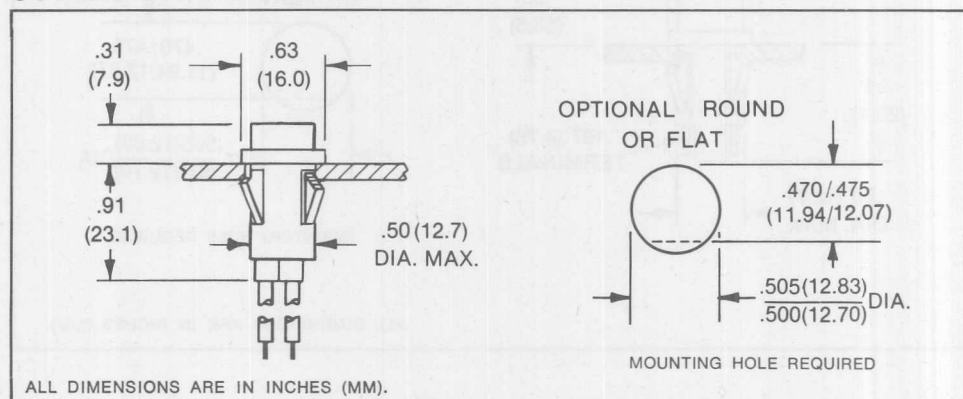


LENS COLOR	NEON		INCANDESCENT	
	MODEL NO. 105-125VAC	MODEL NO. 208-250V	MODEL NO. 12V	MODEL NO. 28V
Red	1050C1	1051C1	1090C1-12V	1090C1-28V
Clear	1050C2	1051C2	—	—
Amber	1050C3	1051C3	1090C3-12V	1090C3-28V
White	1050C4	1051C4	1090C4-12V	1090C4-28V
Green	1052C5*	1053C5*	1090C5-12V	1090C5-28V
Lamp used	C2A + Resistor		#2162	#2187
Lead Color	Black	One Black One Red	Yellow	Purple

* Incorporates G2B lamp and resistor

Underwriters Laboratories (UL) File No. E20325 —
 Canadian Standards Association (CSA) File No. LR13346

OUTLINE DIMENSIONS





NON-RELAMPABLE NEON-INCANDESCENT INDICATOR LIGHTS 1/2" DIA. MOUNTING HOLE

SERIES 1050QC, 1051QC, 1052QC, 1053QC, 1090QC

FEATURES **Mounting:** Will snap-fit into .500/.505 (12.70/12.83) dia. hole in panels .020/.100 (.51/2.54) thick. Push-on speednut SN0461 (see page 9-14) also available.

Terminals: Tinned brass

Lens: Polycarbonate

Bezel: Polished stainless steel. For black finish, add "X" after series letter(s).

Housing: White nylon



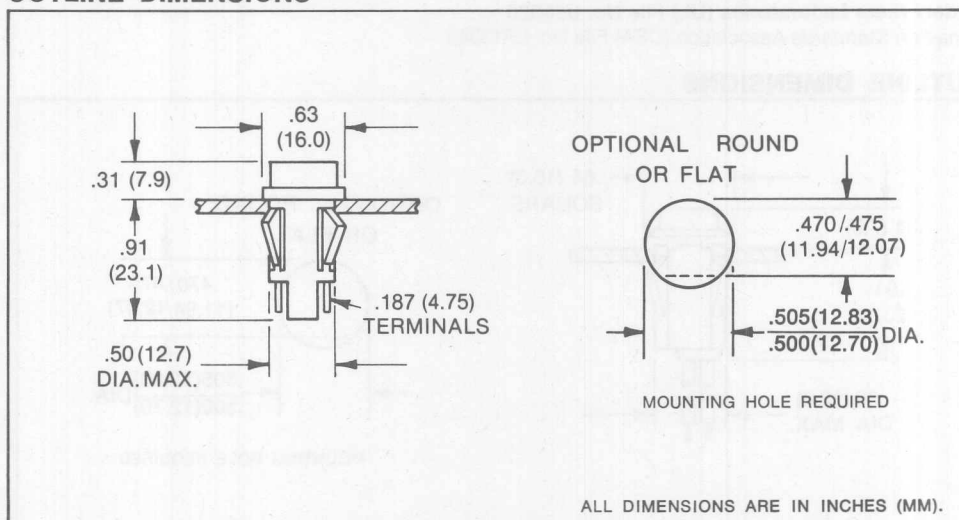
LENS COLOR	NEON		INCANDESCENT	
	MODEL NO. 105-125VAC	MODEL NO. 208-250V	MODEL NO. 12V	MODEL NO. 28V
Red	1050QC1	1051QC1	1090QC1-12V	1090QC1-28V
Clear	1050QC2	—	—	—
Amber	1050QC3	1051QC3	1090QC3-12V	1090QC3-28V
White	1050QC4	1051QC4	1090QC4-12V	1090QC4-28V
Green	1052QC5*	1053QC5*	1090QC5-12V	1090QC5-28V
Lamp used	C2A + Resistor		#2162	#2187

* Incorporates G2B lamp and resistor

Underwriters Laboratories (UL) File No. E20325 —

Canadian Standards Association (CSA) File No. LR13346

OUTLINE DIMENSIONS





NON-RELAMPABLE **NEON-INCANDESCENT INDICATOR LIGHTS** **1/2" DIA. MOUNTING HOLE**

SERIES 1050N, 1052N, 1090N

FEATURES **Mounting:** Will snap-fit into .500/.505 (12.70/12.83) dia. hole in panels .020/.100 (.51/2.54) thick. Push-on speednut (SN0461) (see page 9-14) also available.

Wire Leads: No. 22 AWG (105°C), 4.4/4.8 (111.8/121.9) long, stripped .43/.57 (10.9/14.5)

Lens: Polycarbonate

Bezel: Polished stainless steel. For black finish, add "X" after series letter(s).

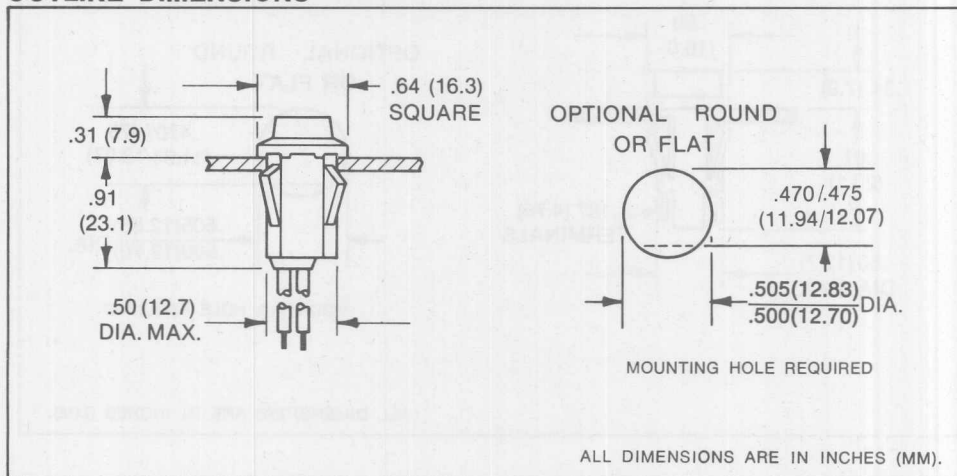
Housing: White nylon



LENS COLOR	NEON	INCANDESCENT	
	MODEL NO. 105-125VAC	MODEL NO. 12V	MODEL NO. 28V
Red	1050N1	1090N1-12V	1090N1-28V
Clear	1050N2	—	—
Amber	1050N3	1090N3-12V	1090N3-28V
White	1050N4	1090N4-12V	1090N4-28V
Green	1052N5*	1090N5-12V	1090N5-28V
Lamp used	C2A + Resistor	#2162	#2187
Lead Color	Black	Yellow	Purple

* Incorporates G2B lamp and resistor
 Underwriters Laboratories (UL) File No. E20325
 Canadian Standards Association (CSA) File No. LR13346

OUTLINE DIMENSIONS





NON-RELAMPABLE **NEON INDICATOR LIGHT** **1/2" DIA. MOUNTING HOLE**

SERIES 1050QN, 1052QN

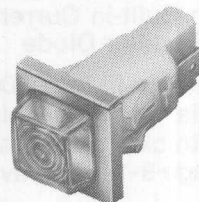
FEATURES **Mounting:** Will snap-fit into .500/.505 (12.70/12.83) dia. hole in panels .020/.100 (.51/2.54) thick. Push-on speednut (SN0461) (see page 9-14) also available.

Terminals: Quick-connect, tinned brass

Lens: Polycarbonate

Bezel: Polished stainless steel. For black finish, add "X" after series letter(s).

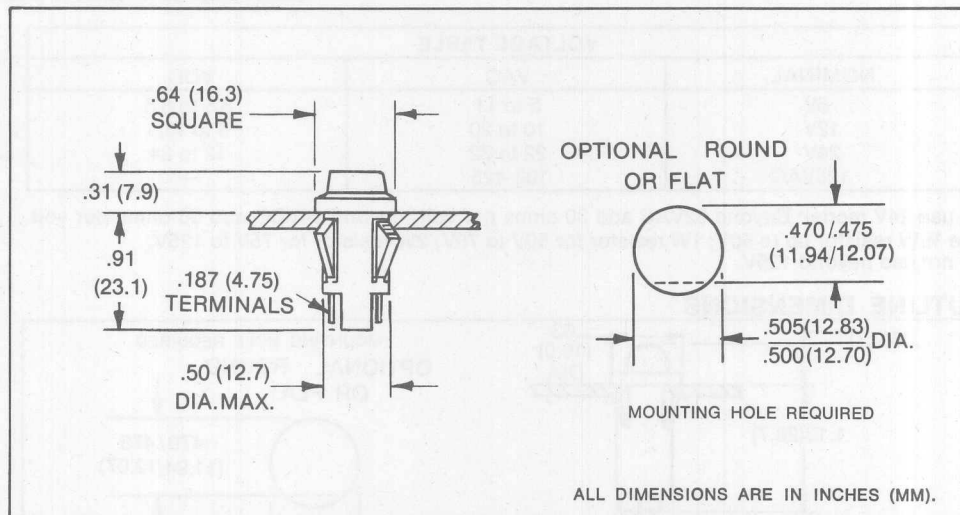
Housing: White nylon



LENS COLOR	NEON
	MODEL NO. 105-125VAC
Red	1050QN1
Amber	1050QN3
White	1050QN4
Green	1052QN5*
Lamp used	C2A + Resistor

* Incorporates G2B lamp and resistor
 Underwriters Laboratories (UL) File No. E20325
 Canadian Standards Association (CSA) File No. LR13346

OUTLINE DIMENSIONS





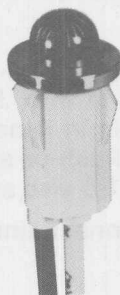
NON-RELAMPABLE **LED INDICATOR LIGHT** **1/2" DIA. MOUNTING HOLE**

SERIES 1091M

FEATURES Solid-State Indicator Lights Complete With Built-in Current-Limiting Resistor and Rectifier Diode

Mounting: Will snap-fit into .500/.505 (12.70/12.83) dia. hole in panels .020/.100 (.51/2.54) thick. Push-on speednut SN0461 (see page 9-14) also available.

Wire Leads: No. 22 AWG (105°C) lead color: red and white 4.4/4.8 (111.8/121.9) long, stripped .43/.57 (10.9/14.5



Lens: Polycarbonate

Anode (+): Red lead

Bezel: Polished stainless steel. For black finish, add "X" after series letter(s).

Housing: White nylon

Note: See Section 5 for additional LED Indicator Lights.

SOLID STATE				
LENS COLOR	MODEL NO. (6V)	MODEL NO. (12V)	MODEL NO. (24V)	MODEL NO. (105-125 VAC*)
Red	1091M1-6V	1091M1-12V	1091M1-24V	1091M1-125VAC
Green	1091M5-6V	1091M5-12V	1091M5-24V	1091M5-125VAC
Yellow	1091M7-6V	1091M7-12V	1091M7-24V	1091M7-125VAC
Resistor (ohms)	150 INTERNAL	390 INTERNAL	1000 INTERNAL	(2) 3.9K 1/2W* (ONE INTERNAL)

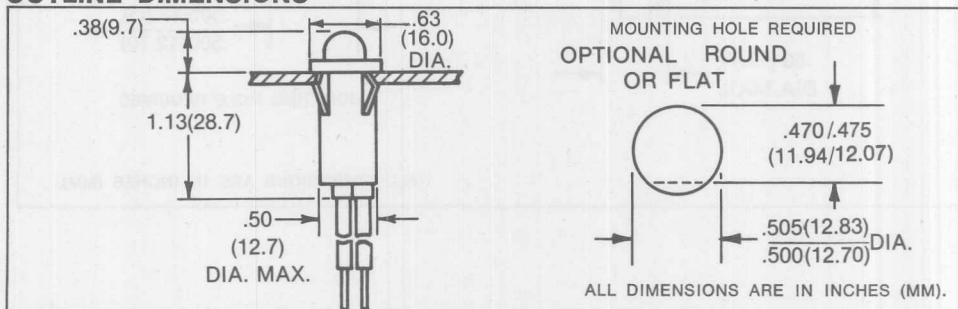
Note: All incorporates IN4004 (400 P.I.V.) rectifier diode.

*125VAC supplied with 6" white wire, stripped 1/2" with external 3.9K 1/2 watt resistor attached to one lead, covered with shrink tubing insulation.

VOLTAGE TABLE		
NOMINAL	VAC	VDC.
6V	5 to 11	3.5 to 6.5
12V	10 to 20	6 to 13.5
24V	22 to 32	12 to 24
125VAC	105-125	—

To use 24V model: Beyond 32VAC add 30 ohms per volt; beyond 24VDC add 50 ohms per volt. Use 1/2 W resistor up to 50V; 1W resistor for 50V to 70V; 2W resistor for 75V to 125V. Do not use beyond 125V.

OUTLINE DIMENSIONS



Alternate LEDs are also available in this package as standard variations.

Industrial Devices, Inc., 260 Railroad Ave., Hackensack, NJ 07601 • (201) 489-8989 • FAX: 201-489-6911



NON-RELAMPABLE

LED INDICATOR LIGHT
1/2" DIA. MOUNTING HOLE

SERIES 1091QM

FEATURES Solid-State Indicator Lights Complete With Built-in Current-Limiting Resistor and Rectifier Diode

Mounting: Will snap-fit into .500/.505 (12.70/12.83) dia. hole in panels .020/.100 (.51/2.54) thick. Push-on speednut SN0461 (see page 9-14) also available.

Terminals: Quick connect, tinned brass

Lens: Polycarbonate

Anode (+): Marked above terminal

Bezel: Polished stainless steel. For black finish, add "X" after series letter(s).

Housing: White nylon



Note: See Section 5 for additional LED Indicator Lights.

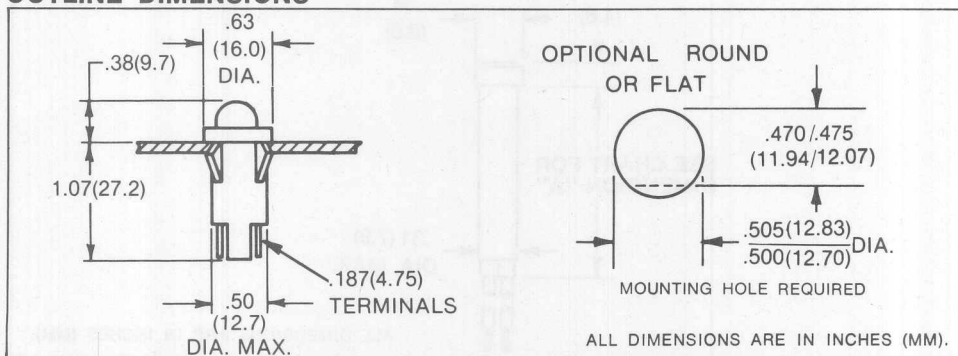
SOLID STATE			
LENS COLOR	MODEL NO. 12V	MODEL NO. 24V	INCORPORATES LED
Red	1091QM1-12V	1091QM1-24V	4304H1
Green	1091QM5-12V	1091QM5-24V	4304H5
Yellow	1091QM7-12V	1091QM7-24V	4304H7
Internal Resistor (ohms)	390	1000	—

Note: Also incorporates 1N4004 (400 P.I.V.) rectifier diode.

VOLTAGE TABLE		
NOMINAL	VAC	VDC
12V	10 to 20	6 to 13.5
24V	22 to 32	12 to 24

To use 24V model: Beyond 32VAC add 30 ohms per volt; beyond 24VDC add 50 ohms per volt. Use 1/2 W resistor up to 50V; 1W resistor for 50V to 70V; 2W resistor for 75V to 125V. Do not use beyond 125V.

OUTLINE DIMENSIONS



Alternate LEDs are also available in this package as standard variations.



NON-RELAMPABLE **NEON-INCANDESCENT INDICATOR LIGHTS** **5/16" DIA. MOUNTING HOLE**

SERIES 2110A, 2111A, 2112A, 2113A, 2195A

FEATURES **Mounting Hole:** .31 (7.9) min. dia. Supplied with push-on speednut SN1287 (see page 9-14)

Wire Leads: No. 22 AWG (105°C), 4.4/4.8 (112/122.9) long, stripped .43/.57 (10.9/14.5)

Lens: Polycarbonate—neon transparent, incandescent translucent

Bezel: White nylon. For black finish, add "X" after series letter(s).

Housing: White nylon



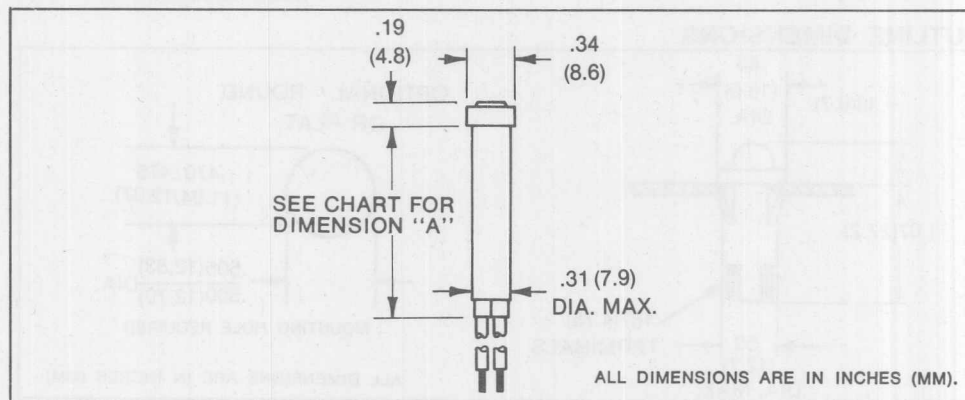
LENS COLOR	NEON		INCANDESCENT	
	MODEL NO. (105-125VAC)	MODEL NO. (208-250VAC)	MODEL NO. (12V)	MODEL NO. (28V)
Red	2110A1	2111A1	2195A1-12V	2195A1-28V
Clear	2110A2	2111A2	—	—
Amber	2110A3	2111A3	2195A3-12V	2195A3-28V
White	2110A4	2111A4	2195A4-12V	2195A4-28V
Green	2112A5*	2113A5*	2195A5-12V	2195A5-28V
Blue	2112A6†	2113A6†	—	—
Lamp used	C2A+ Resistor	C2A+ Resistor	#2162	#2187
Lead Color	Black	Black Red	Yellow	Purple
"A" DIM	1.48(37.6)	1.48(37.6)	.74(18.8)	.74(18.8)

* Incorporates G2B lamp and resistor

† Incorporates T2B lamp and resistor

Underwriters Laboratories (UL) File No. E20325 —
 Canadian Standards Association (CSA) File No. LR13346

OUTLINE DIMENSIONS





NON-RELAMPABLE INCANDESCENT INDICATOR LIGHT 5/16" DIA. MOUNTING HOLE

SERIES 2195QA

FEATURES **Mounting Hole:** .31 (7.9) min. dia. Supplied with push-on speednut SN1287 (see page 9-14)

Terminals: Quick-connect, tinned brass

Lens: Polycarbonate

Bezel: White nylon. For black finish, add "X" after series letter(s).

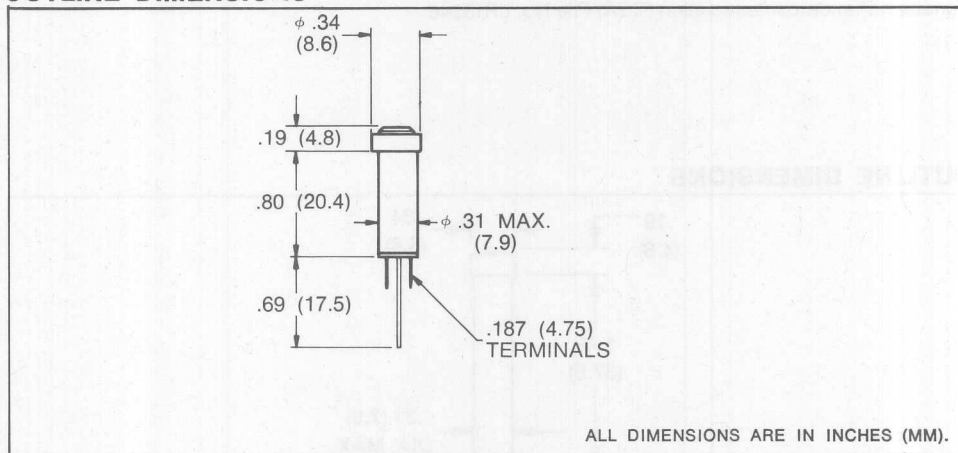
Housing: White nylon



LENS COLOR	INCANDESCENT	
	MODEL NO. 12V	MODEL NO. 28V
Red	2195QA1-12V	2195QA1-28V
Amber	2195QA3-12V	2195QA3-28V
White	2195QA4-12V	2195QA4-28V
Green	2195QA5-12V	2195QA5-28V
Lamp	#2162	#2187

Underwriters Laboratories (UL) File No. E20325
Canadian Standards Association (CSA) File No. 13346

OUTLINE DIMENSIONS





NON-RELAMPABLE NEON INDICATOR LIGHT 5/16" DIA. MOUNTING HOLE

SERIES 2110QA, 2111QA, 2112QA, 2113QA

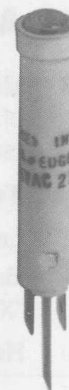
FEATURES **Mounting Hole:** .31 (7.9) min. dia. Supplied with push-on speednut SN1287 (see page 9-14)

Terminals: Quick-connect, tinned brass .187 x .020

Lens: Polycarbonate

Housing: White nylon

Bezel: White nylon. For black finish, add "X" after series letter(s).

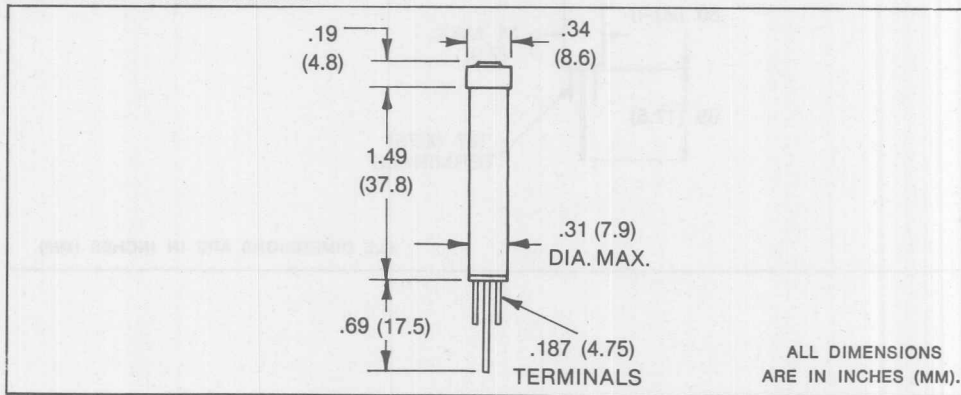


NEON			
	LENS COLOR	MODEL NO. (105-125VAC)	MODEL NO. (208-250VAC)
	Red	2110QA1	2111QA1
	Clear	2110QA2	2111QA2
	Amber	2110QA3	2111QA3
	White	2110QA4	2111QA4
	Green	2112QA5 *	2113QA5*
	Lamp	C2A+ Resistor	C2A+ Resistor

* Incorporates G2B lamp and resistor

Underwriters Laboratories (UL) File No. E20325 —
Canadian Standards Association (CSA) File No. LR13346

OUTLINE DIMENSIONS





NON-RELAMPABLE **NEON INDICATOR LIGHT** **5/16" DIA. MOUNTING HOLE**

SERIES 2120A, 2121A

FEATURES

Mounting Hole: .31 (7.87) min. dia. Supplied with push-on speednut SN1287 (see page 9-14)

Wire Leads: No. 22 AWG (105°C), 4.4/4.8 (112/122.9) long, stripped .43/.57 (10.9/14.5)

Lens: Polycarbonate

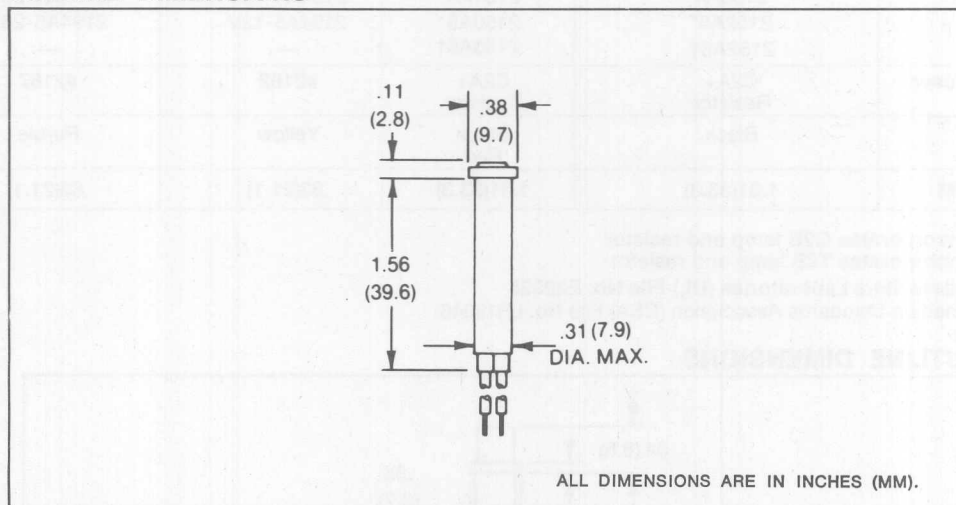
Bezel: White nylon. For black finish, add "X" after series letter(s).

Housing: White nylon



NEON		
LENS COLOR	MODEL NO. (105-125VAC)	MODEL NO. (208-250VAC)
Red	2120A1	2121A1
Amber	2120A3	2121A3
White	2120A4	2121A4
Lamp used	C2A+ Resistor	C2A+ Resistor

OUTLINE DIMENSIONS



Underwriters Laboratories (UL) File No. E20325 —
 Canadian Standards Association (CSA) File No. LR13346



NON-RELAMPABLE

NEON—INCANDESCENT INDICATOR LIGHTS

5/16" DIA. MOUNTING HOLE

SERIES 2150A, 2151A, 2152A, 2153A, 2194A

- FEATURES**
- Mounting Hole:** .31 (7.9) min. dia. Supplied with push-on speednut SN1287 (see page 9-14)
 - Wire Leads:** No. 22 AWG (105°C) 4.4/4.8 (111.8/121.9) long, stripped .43/.57 (10.9/14.5)
 - Lens:** Polycarbonate—neon transparent, incandescent translucent.
 - Bezel:** Polished stainless steel. For black finish, add "X" after series letter(s).
 - Housing:** White nylon



LENS COLOR	NEON		INCANDESCENT	
	MODEL NO. (105-125VAC)	MODEL NO. (208-250VAC)	.MODEL NO. (12V)	MODEL NO. (28V)
Red	2150A1	2151A1	2194A1-12V	2194A1-28V
Clear	2150A2	2151A2	—	—
Amber	2150A3	2151A3	2194A3-12V	2194A3-28V
White	2150A4	2151A4	2194A4-12V	2194A4-28V
Green	2152A5*	2153A5*	2194A5-12V	2194A5-28V
Blue	2152A6†	2153A6†	—	—
Lamp used	C2A+ Resistor	C2A+ Resistor	#2162	#2187
Lead Color	Black	Black Red	Yellow	Purple
"A" DIM	1.31(33.3)	1.31(33.3)	.83(21.1)	.83(21.1)

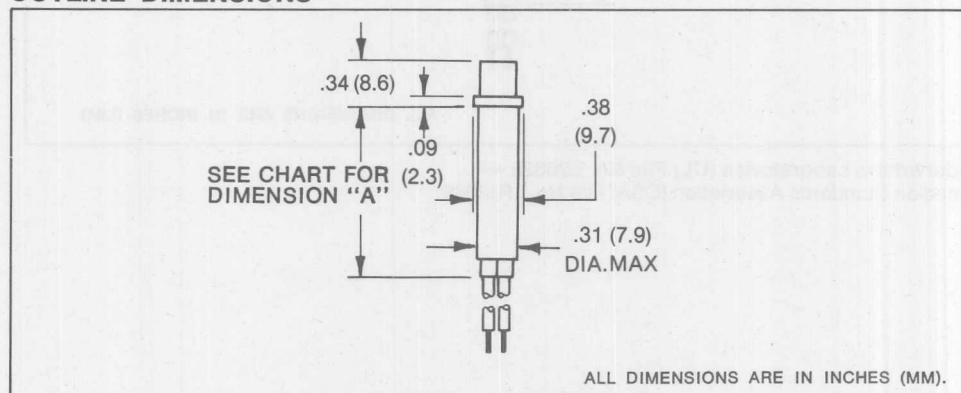
* Incorporates G2B lamp and resistor

† Incorporates T2B lamp and resistor

Underwriters Laboratories (UL) File No. E20325

Canadian Standards Association (CSA) File No. LR13346

OUTLINE DIMENSIONS





NON-RELAMPABLE NEON INDICATOR LIGHTS 5/16" DIA. MOUNTING HOLE

SERIES 2150QA, 2151QA

FEATURES **Mounting Hole:** .31 (7.9) min. dia. Supplied with push-on speednut SN1287 (see page 9-14)

Terminals: Quick-connect, tinned brass .187 x .020

Lens: Polycarbonate

Bezel: Polished stainless steel. For black finish, add "X" after series letter(s).

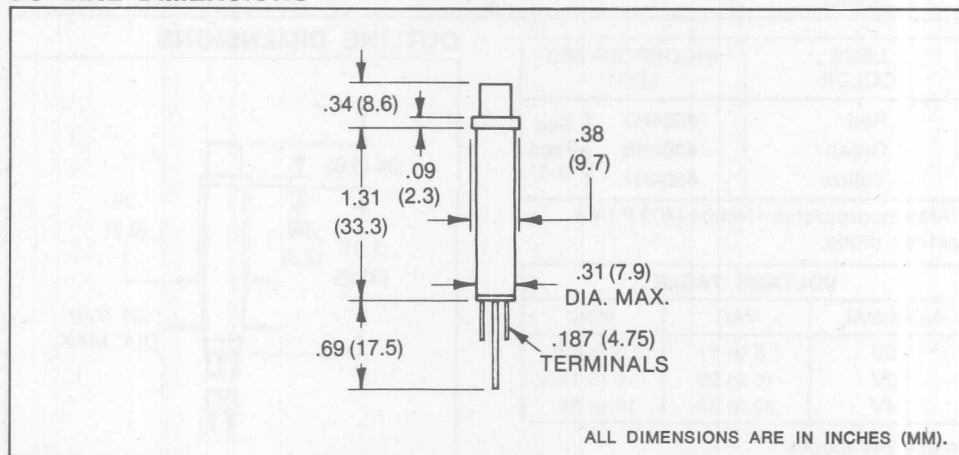
Housing: White nylon



NEON		
LENS COLOR	MODEL NO. (105-125VAC)	MODEL NO. (208-250VAC)
Red	2150QA1	2151QA1
Amber	2150QA3	2151QA3
White	2150QA3	2151QA4
Green	2152QA5*	2153QA5*
Lamp used	C2A+Resistor	

* Incorporates G2B lamp and resistor
Underwriters Laboratories (UL) File No. E20325
Canadian Standards Association (CSA) File No. 13346

OUTLINE DIMENSIONS





NON-RELAMPABLE **LED SOLID-STATE INDICATOR LIGHT** **5/16" DIA. MOUNTING HOLE**

SERIES 2191L

FEATURES Solid-State Indicator Lights Complete With Built-in Current-Limiting Resistor and Rectifier Diode.

Mounting Hole: .31 (7.9) min. dia. Supplied with push-on speednut SN1287 (see page 9-14)

Wire Leads: No. 22 AWG (105°C), 4.4/4.8 (111.8/121.9) long, stripped .43/.57 Anode (10.9/14.5)

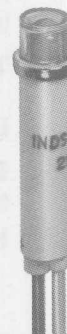
Anode (+): Red lead

Lens: Polycarbonate

Bezel: Polished stainless steel. For black finish, add "X" after series letter(s).

Housing: White nylon

Note: See Section 5 for additional LED Indicator Lights.



LENS COLOR	LED SOLID STATE INDICATOR		
	MODEL NO. 6V	MODEL NO. 12V	MODEL NO. 24V
Red	2191L1-6V	2191L1-12V	2191L1-24V
Green	2191L5-6V	2191L5-12V	2191L5-24V
Yellow	2191L7-6V	2191L7-12V	2191L7-24V
Internal Resistor (ohms)	150	390	1000

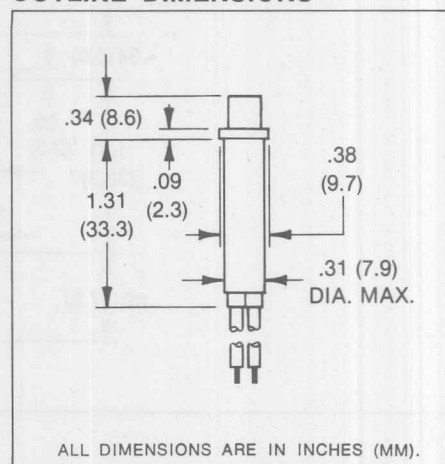
LENS COLOR	INCORPORATES LED*	
Red	4304H1	See Page 3-9
Green	4304H5	
Yellow	4304H7	

* Also incorporates 1N4004 (400 P.I.V.) rectifier diode.

VOLTAGE TABLE		
NOMINAL	VAC	VDC
6V	5 to 11	3.5 to 6.5
12V	10 to 20	6 to 13.5
24V	22 to 32	12 to 24

To use 24V model:
 Beyond 32VAC add 30 ohms per volt.
 Beyond 24VDC add 50 ohms per volt.
 Use 1/2W resistor up to 50V, 1W resistor for 50V to 70V, 2W resistor for 75V to 125V.
 Do not use beyond 125V.

OUTLINE DIMENSIONS



Alternate LEDs are also available in this package as standard variations.



NON-RELAMPABLE **LED SOLID-STATE INDICATOR LIGHT** $\frac{5}{16}$ " DIA. MOUNTING HOLE

SERIES 2191QL

FEATURES Solid-State Indicator Lights Complete With Built-in Current-Limiting Resistor and Rectifier Diode.

Mounting Hole: .31 (7.9) min. dia. Supplied with push-on speednut SN1287 (see page 9-14)

Terminals: Quick-connect, tinned brass .187 x .020

Anode (+): Marked above terminal

Lens: Polycarbonate

Bezel: Polished stainless steel. For black finish, add "X" after series letter(s).

Housing: White nylon



LENS COLOR	LED SOLID STATE INDICATOR	
	MODEL NO. 12V	MODEL NO. 24V
Red	2191QL1-12V	2191QL1-24V
Green	2191QL5-12V	2191QL5-24V
Yellow	2191QL7-12V	2191QL7-24V
Internal Resistor (ohms)	390	1000

Note: See Section 5 for additional LED Indicator Lights.

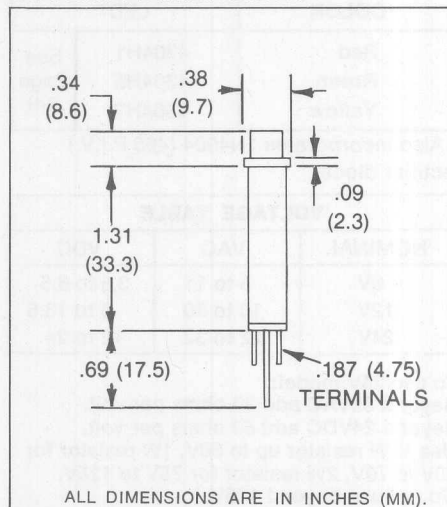
LENS COLOR	INCORPORATES LED*	
Red	4304H1	See Page 3-9
Green	4304H5	
Yellow	4304H7	

* Also incorporates 1N4004 (400 P.I.V.) rectifier diode.

VOLTAGE TABLE		
NOMINAL	VAC	VDC
12V	10 to 20	6 to 13.5
24V	22 to 32	12 to 24

To use 24V model:
 Beyond 32VAC add 30 ohms per volt.
 Beyond 24VDC add 50 ohms per volt.
 Use $\frac{1}{2}$ W resistor up to 50V, 1W resistor for 50V to 70V, 2W resistor for 75V to 125V.
 Do not use beyond 125V.

OUTLINE DIMENSIONS



Alternate LEDs are also available in this package as standard variations.



NON-RELAMPABLE **LED SOLID-STATE INDICATOR LIGHT** **5/16" DIA. MOUNTING HOLE**

SERIES 2191U

FEATURES

Solid-State Indicator Lights Complete with Built-in-Current-Limiting Resistor and Rectifier Diode.

Mounting Hole: .31 (7.9) min. dia. Supplied with push-on speednut SN 1287 (see page 9-14)

Wire Leads: No. 22 AWG (105°C), 4.4/4.8 (111.8/121.9) long, stripped .43/.57 Anode (10.9/14.5)

Anode (+): Red lead

Lens: Polycarbonate

Bezel: Polished stainless steel. For black finish, add "X" after series letter(s).

Housing: White nylon



Note: See Section 5 for additional LED Indicator Lights.

LENS COLOR	LED SOLID STATE INDICATOR		
	MODEL NO. 6V	MODEL NO. 12V	MODEL NO. 24V
Red	2191U1-6V	2191U1-12V	2191U1-24V
Green	2191U5-6V	2191U5-12V	2191U5-24V
Yellow	2191U7-6V	2191U7-12V	2191U7-24V
Internal Resistor (ohms)	150	390	1000

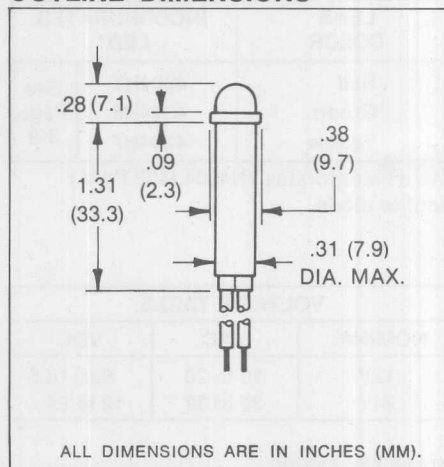
LENS COLOR	INCORPORATES LED*	
Red	4304H1	See Page 3-9
Green	4304H5	
Yellow	4304H7	

* Also incorporates 1N4004 (400 P.I.V.) rectifier diode.

VOLTAGE TABLE		
NOMINAL	VAC	VDC
6V	5 to 11	3.5 to 6.5
12V	10 to 20	6 to 13.5
24V	22 to 32	12 to 24

To use 24V model:
 Beyond 32VAC add 30 ohms per volt.
 Beyond 24VDC add 50 ohms per volt.
 Use 1/2W resistor up to 50V, 1W resistor for 50V to 70V, 2W resistor for 75V to 125V.
 Do not use beyond 125V.

OUTLINE DIMENSIONS





NON-RELAMPABLE **LED SOLID-STATE INDICATOR LIGHT** **5/16" DIA. MOUNTING HOLE**

SERIES 2191QU

FEATURES Solid-State Indicator Lights Complete With Built-in Current-Limiting Resistor and Rectifier Diode.

Mounting Hole: .31 (7.9) min. dia. Supplied with push-on speednut SN1287 (see page 9-14)

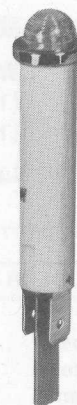
Terminals: Quick-connect, tinned brass .187 x .020

Anode (+): Marked above terminal

Lens: Polycarbonate

Bezel: Polished stainless steel. For black finish, add "X" after series letter(s).

Housing: White nylon



LENS COLOR	SOLID STATE	
	MODEL NO. 12V	MODEL NO. 24V
Red	2191QU1-12V	2191QU1-24V
Green	2191QU5-12V	2191QU5-24V
Yellow	2191QU7-12V	2191QU7-24V
Internal Resistor (ohms)	390	1000

Note: See Section 5 for additional LED Indicator Lights.

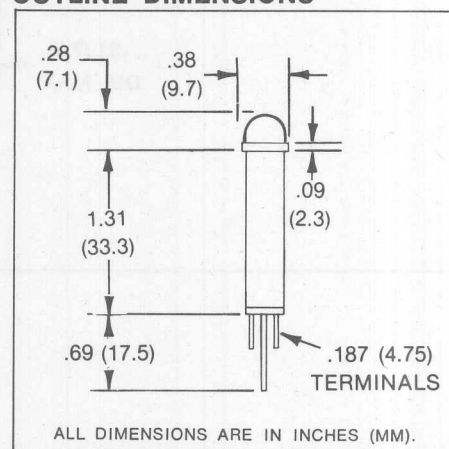
LENS COLOR	INCORPORATES LED*	
Red	4304H1	See Page 3-9
Green	4304H5	
Yellow	4304H7	

* Also incorporates 1N4004 (400 P.I.V.) rectifier diode.

VOLTAGE TABLE		
NOMINAL	VAC	VDC
12V	10 to 20	6 to 13.5
24V	22 to 32	12 to 24

To use 24V model:
 Beyond 32VAC add 30 ohms per volt.
 Beyond 24VDC add 50 ohms per volt.
 Use 1/2 W resistor up to 50V, 1W resistor for 50V to 70V, 2W resistor for 75V to 125V.
 Do not use beyond 125V.

OUTLINE DIMENSIONS



Alternate LEDs are also available in this package as standard variations.



NON-RELAMPABLE INCANDESCENT INDICATOR LIGHT 5/16" DIA. MOUNTING HOLE

SERIES 2990D

FEATURES Mounting Hole: .31 (7.9) min.

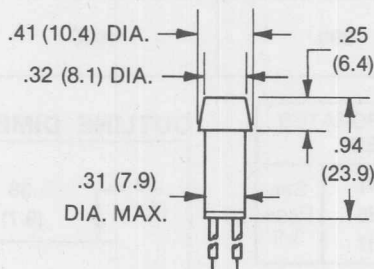
Wire Leads: No. 24 AWG 4.4/4.8
(111.8/121.9) long, stripped .43/.57
(10.9/14.5)

Lens: Polycarbonate



INCANDESCENT			
LENS COLOR	MODEL NO. 6V	MODEL NO. 12V	MODEL NO. 28V
Red	2990D1-6V	2990D1-12V	2990D1-28V
Amber	2990D3-6V	2990D3-12V	2990D3-28V
White	2990D4-6V	2990D4-12V	2990D4-28V
Green	2990D5-6V	2990D5-12V	2990D5-28V
Blue	2990D6-6V	2990D6-12V	2990D6-28V
Lamp used	#2112	#2162	#2187
Lead Color	White	Yellow	Purple
Mounting	Supplied with push-on speednut SN1287 (see page 9-14)		

OUTLINE DIMENSIONS



ALL DIMENSIONS ARE IN INCHES (MM).



NON-RELAMPABLE INCANDESCENT INDICATOR LIGHT 1/2" DIA. MOUNTING HOLE

SERIES 2990P

FEATURES Mounting Hole: .50 (12.7) min. dia.

Wire Leads: No. 24 AWG 4.4/4.8
(111.8/121.9) long, stripped .43/.57
(10.9/14.5)

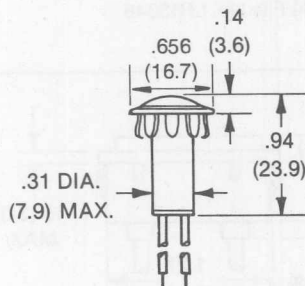
Lens: Polycarbonate

Bezel: Mirror finish chrome plated steel



INCANDESCENT		
LENS COLOR	MODEL NO. 12V	MODEL NO. 28V
Red	2990P1-12V	2990P1-28V
Amber	2990P3-12V	2990P3-28V
White	2990P4-12V	2990P4-28V
Green	2990P5-12V	2990P5-28V
Blue	2990P6-12V	2990P6-28V
Lamp used	#2162	#2187
Lead Color	Yellow	Purple
Mounting	Plug-button bezel	

OUTLINE DIMENSIONS



ALL DIMENSIONS ARE IN INCHES (MM).

Underwriters Laboratories (UL) File No. E20325
Canadian Standards Association (CSA) File No. LR13346



NON-RELAMPABLE NEON INDICATOR LIGHT

SERIES 2330D, 2332D

FEATURES **Mounting:** Will snapfit into .032/.100 (.81/.254) thick panel, use speednut for other panel thicknesses. Available with speednut SN1963 (see page 9-14).

Wire Leads: No. 22 AWG (105°C), 4.4/4.8 (111.8/121.9) long, stripped .43/.57 (10.9/14.5)

Lens: Polycarbonate

Bezel: Polished stainless steel. For black finish, add "X" after series letter(s).



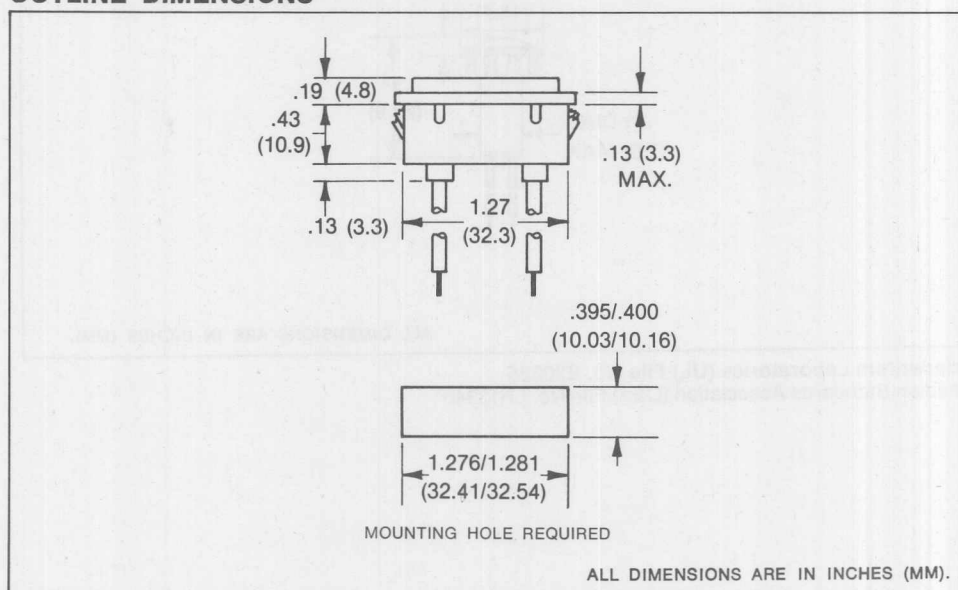
2330D

LENS COLOR	NEON
	MODEL NO. 105-125VAC
	WIRE LEADS
Red	2330D1
Amber	2330D3
White	2330D4
Green	2332D5*
Lamp used	C6A + Resistor

* Incorporates G2B lamp and resistor.

Underwriters Laboratories (UL) File No. E20325 —
Canadian Standards Association (CSA) File No. LR13346

OUTLINE DIMENSIONS





NON-RELAMPABLE NEON-INCANDESCENT INDICATOR LIGHTS

SERIES 2330QD, 2332QD, 2390QD

FEATURES **Mounting:** Will snapfit into .032/.100 (.81/.254) thick panel, use speednut for other panel thicknesses. Available with speednut SN1963 (see page 9-14).

Terminals: Quick-connect, tinned brass

Lens: Polycarbonate

Bezel: Polished stainless steel. For black finish, add "X" after series letter(s).

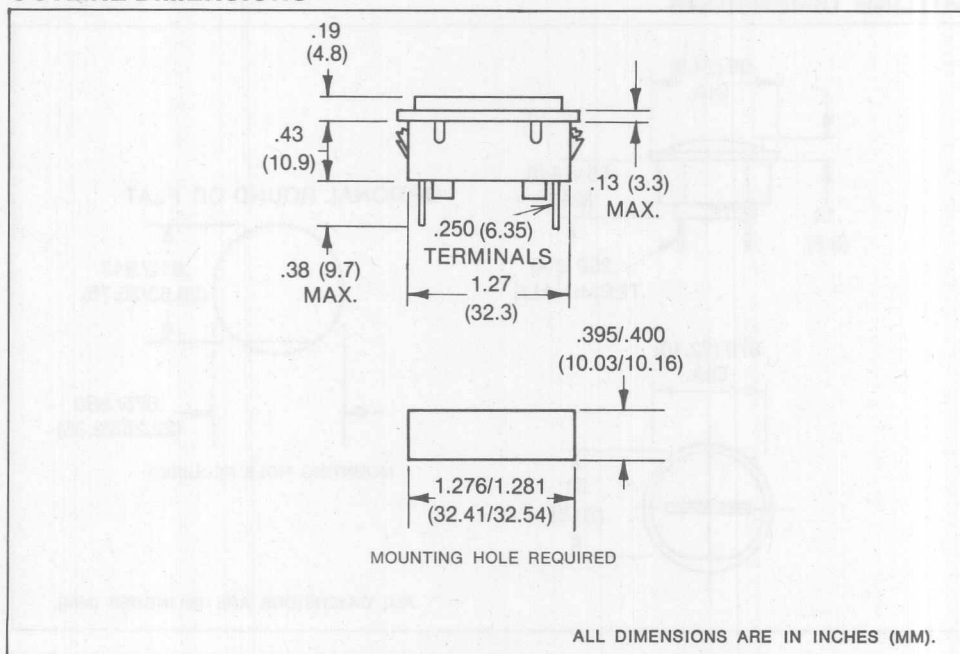


LENS COLOR	NEON	INCANDESCENT
	MODEL NO. 105-125VAC	MODEL NO. 28V
	.250 TERMINALS	.250 TERMINALS
Red	2330QD1	2390QD1-28V
Amber	2330QD3	2390QD3-28V
White	2330QD4	2390QD4-28V
Green	2332QD5*	2390QD5-28V
Lamp used	C6A + Resistor	#2187

* Incorporates G2B lamp and resistor.

Underwriters Laboratories (UL) File No. E20325 —
Canadian Standards Association (CSA) File No. LR13346

OUTLINE DIMENSIONS

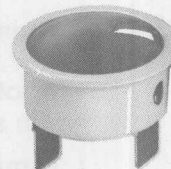




NON-RELAMPABLE NEON INDICATOR LIGHT 7/8" DIA. MOUNTING HOLE

SERIES 2620QK, 2622QK

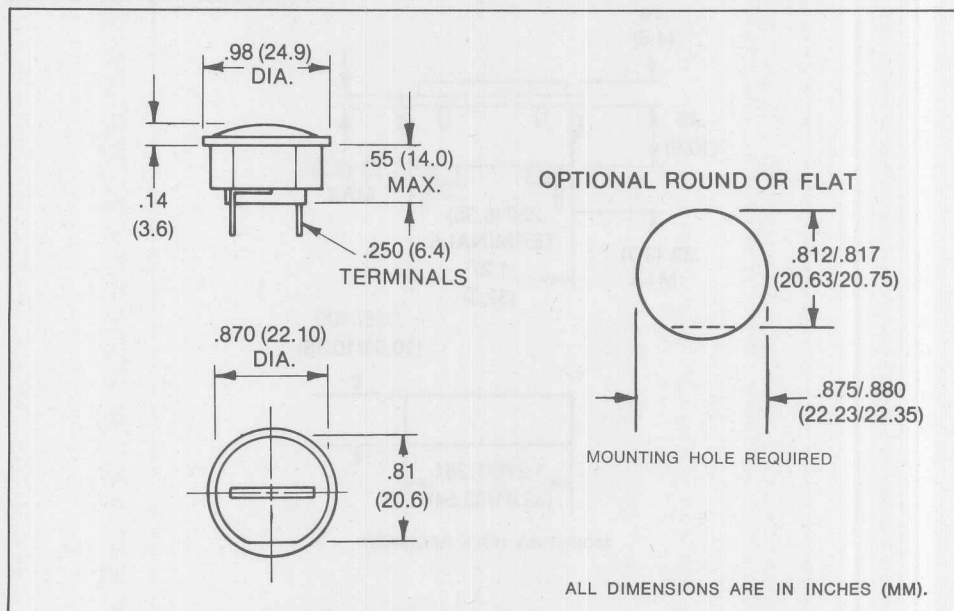
- FEATURES**
- Mounting:** Supplied with push-on speednut SN2089 (see page 9-14)
- Terminals:** Quick-connect, tinned brass
- Lens:** Polycarbonate
- Bezel:** White nylon. For black finish, add "X" after series letter(s).
- Housing:** White nylon



LENS COLOR	NEON
	MODEL NO. 105-125VAC .250 TERMINALS
Red	2620QK1
Amber	2620QK3
White	2620QK4
Green	2622QK5*
Lamp used	C2A + Resistor

* Incorporates G2B lamp and resistor
Underwriters Laboratories (UL) File No. E20325 —
Canadian Standards Association (CSA) File No. LR13346

OUTLINE DIMENSIONS





NON-RELAMPABLE NEON INDICATOR LIGHT 7/8" DIA. MOUNTING HOLE

SERIES 2620K, 2622K

FEATURES **Mounting:** Supplied with push-on speednut SN2089 (see page 9-14)

Wire Leads: No. 22 AWG (105°C), 4.4/4.8 (112/122.9) long, stripped .43/.57 (10.9/14.5)

Lens: Polycarbonate

Bezel: White nylon. For black finish, add "X" after series letter(s).

Housing: White nylon

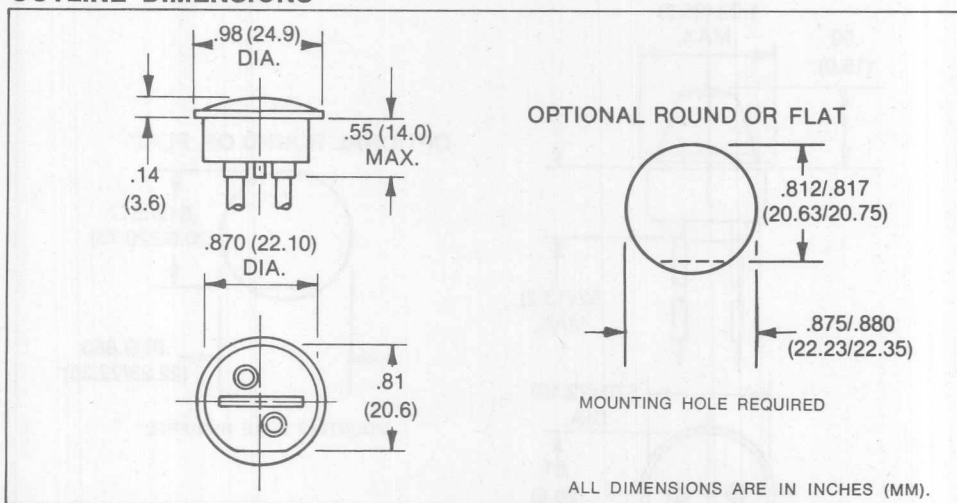


LENS COLOR	NEON
	MODEL NO. 105-125VAC WIRE LEADS
Red	2620K1
Amber	2620K3
White	2620K4
Green	2622K5*
Lamp used	C2A + Resistor

* Incorporates G2B lamp and resistor

Underwriters Laboratories (UL) File No. E20325 —
Canadian Standards Association (CSA) File No. LR13346

OUTLINE DIMENSIONS





NON-RELAMPABLE **NEON INDICATOR LIGHT** **7/8" DIA. MOUNTING HOLE**

SERIES 2620T, 2621T, 2622T, 2623T

FEATURES **Mounting:** Supplied with push-on speednut SN2089 (see page 9-14)

Wire Leads: No. 22 AWG (105°C), 4.4/4.8 (112/122.9) long, stripped .43/.57 (10.9/14.5)

Lens: Polycarbonate

Bezel: Polished stainless steel. For black finish, add "X" after series letter(s).

Housing: White nylon



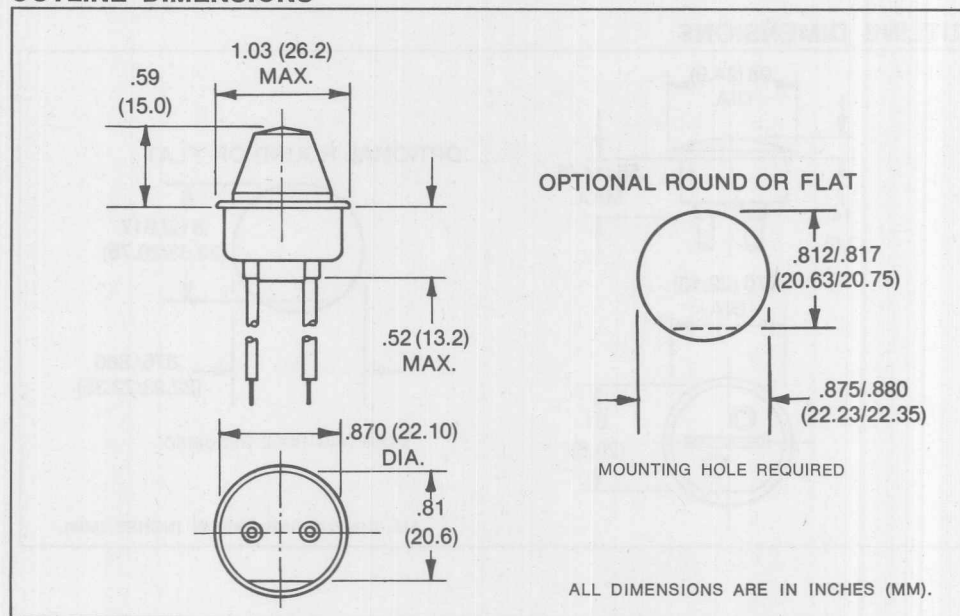
LENS COLOR	NEON	
	MODEL NO. 105-125VAC	MODEL NO. 208-250V
Red	2620T1	2621T1
Amber	2620T3	2621T3
Green	2622T5*	2623T5*
Lamp used	C2A + Resistor	

* Incorporates G2B lamp and resistor

Underwriters Laboratories (UL) File No. E20325 —

Canadian Standards Association (CSA) File No. LR13346

OUTLINE DIMENSIONS





NON-RELAMPABLE NEON FLASHER INDICATOR LIGHT 7/8" DIA. MOUNTING HOLE

SERIES 2660T

FEATURES These neon flashers incorporate a built-in flashing circuit to provide unmistakable indication even in high ambient light environments. Bulb is up into the lens and can be seen from any angle. New solid state construction for instant-on operation.

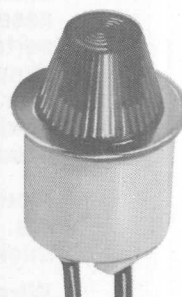
Mounting: Supplied with push-on speednut SN2089 (see page 9-14)

Wire Leads: No. 22 AWG (105°C), 4.4/4.8 (112/122.9) long, stripped .43/.57 (10.9/14.5)

Lens: Polycarbonate

Bezel: Polished stainless steel. For black finish, add "X" after series letter(s).

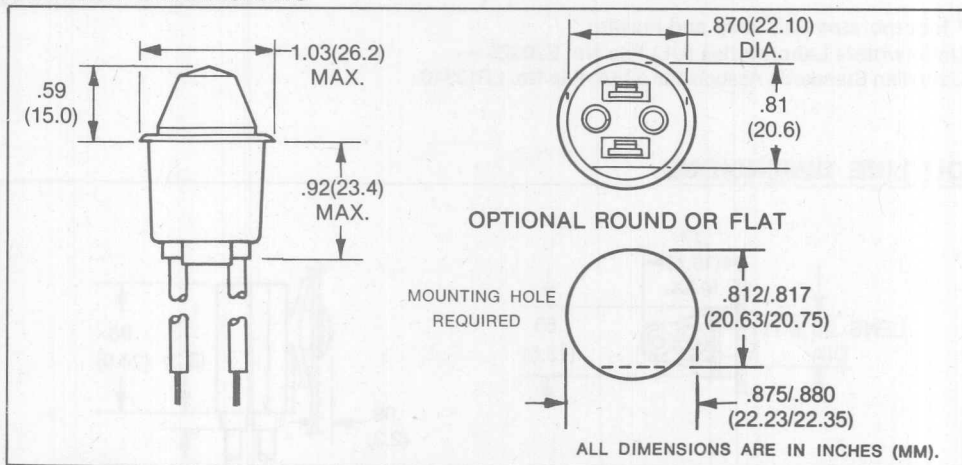
Housing: White nylon



NEON	LENS COLOR
MODEL NO. 105-125VAC	
2660T1	Red
2660T3	Amber

Note: Flashing rate 60 to 150 per minute

OUTLINE DIMENSIONS



Underwriters Laboratories (UL) File No. E20325
Canadian Standards Association (CSA) File No. LR13346



NON-RELAMPABLE NEON INDICATOR LIGHT

SERIES 4700A, 4702A

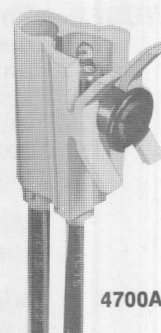
FEATURES MINI-DOT 4700 Series Indicator Lights are small, attractive, and economical. The assembly consists of a lens which is inserted into the front of the panel, plus a lamp housing which slides on from the rear. The lamp is positioned directly behind the lens to provide maximum brightness.

Mounting Hole: .312/.317 (7.92/8.05) dia. in panels .020/.125 (.513/3.18) thick

Wire Leads: No. 22 AWG (105°C) 4.4/4.8 (111.8/121.9) long, stripped .43/.57 (10.9/14.5)

Lens: Polycarbonate

Housing: White nylon



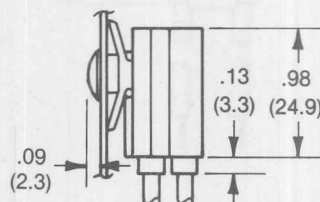
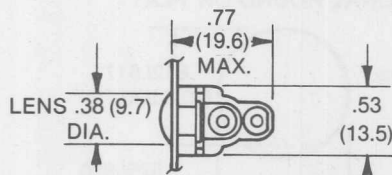
4700A

NEON	
LENS COLOR	MODEL NO. 105-125VAC
Red	4700A1
Amber	4700A3
White	4700A4
Green	4702A5*
Lamp used	C2A + Resistor
Lead Color	Black

* Incorporates G2B lamp and resistor.

Underwriters Laboratories (UL) File No. E20325 —
Canadian Standards Association (CSA) File No. LR13346

OUTLINE DIMENSIONS



ALL DIMENSIONS ARE IN INCHES (MM).



NON-RELAMPABLE NEON-LED INDICATOR LIGHT 5/16" SQ. MOUNTING HOLE

Economical GLO-DOT 5900 Series Square Indicator Lights combine attractive appearance with easy snap-in mounting. Tamper-proof housings are rugged and long-lived.

• Neon models are supplied com-

plete with a built-in current-limiting resistor. LED models are supplied complete with a built-in current-limiting resistor and a rectifier diode.

• UL Recognized — CSA Approved

SERIES 5900K, 5902K, 5991K

FEATURES

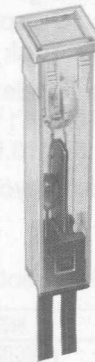
Mounting: Will snap-fit into .315/.312 (8.00/7.92) sq. hole in panels .02/.13 (.5/3.3) thick

Wire Leads: No. 22 AWG (105°C), 4.4/4.8 (111.8/121.9) long, stripped .43/.57 (10.9/14.5)

Lens: Polycarbonate

Anode (+): Red lead

Underwriters Laboratories (UL) File No. E20325 —
Canadian Standards Association (CSA) File No. LR13346



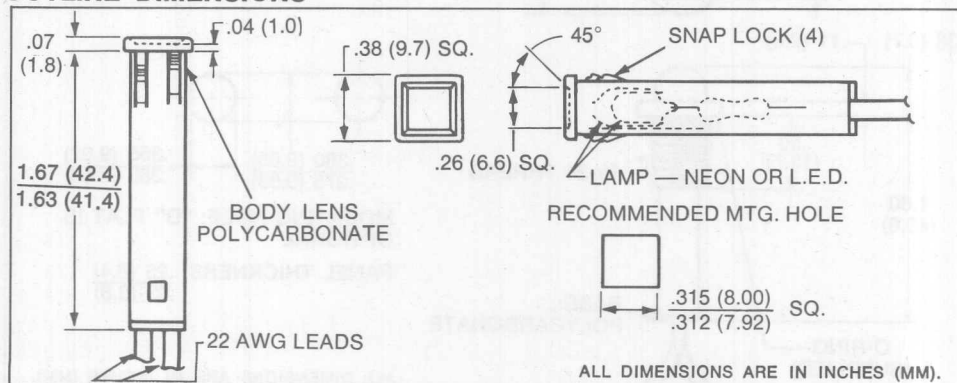
LENS COLOR	NEON	SOLID STATE		
	MODEL NO. 105-125VAC	MODEL NO. 12V	MODEL NO. 24V	INCORPORATES LED
Red	5900K1	5991K1-12V	5991K1-24V	4305H1
Amber	5900K3	—	—	—
Green	5902K5†	5991K5-12V	5991K5-24V	4305H5
Yellow	—	5991K7-12V	5991K7-24V	4305H7
Internal Resistor (Ohms)	—	390*	1000*	
Lamp used	C2A + Resistor			

† Incorporates G2B lamp and resistor

* Also incorporates 1N4004 (400 P.I.V.) rectifier diode

Note: See Section 5 for additional
LED Indicator Lights.

OUTLINE DIMENSIONS



Industrial Devices, Inc., 260 Railroad Ave., Hackensack, NJ 07601 • (201) 489-8989 • FAX: 201-489-6911



OIL-TIGHT LED NON-RELAMPABLE NEON INDICATOR LIGHT 3/8" DIA. MOUNTING HOLE HIGH BRIGHTNESS T-1 3/4 (5mm)

SERIES 6010M, 6011M, 6012M, 6013M, 6091M

- Solid state lights complete with built-in current-limiting resistor and rectifier diode
- Meets NEMA Class 13
- UL recognized—CSA approved

FEATURES **Mounting:** .38 (9.65) min. dia. hole. Supplied with internal tooth lock washer and hex nut.

Wire Leads: No. 22 † AWG (105°C), 4.4/4.8 (111.8/121.9) long, stripped .43/.57 (10.9/14.5)

Lens: Polycarbonate

Bezel: Polished stainless steel.
For black finish, add "X" after series letter(s).

Gaskets: Buna-N

Housing: Black nylon



UL FILE NO. E20325
CSA FILE NO. LR13346

Note: See Section 5 for additional LED Indicator Lights.

NEON		
LENS COLOR	MODEL NO. FOR 105-125VAC	MODEL NO. FOR 208-250VAC
Red	6010M1	6011M1
Amber	6010M3	6011M3
Green	6012M5*	6013M5*
Lamp	C2A + Resistor	C2A + Resistor
Lead Color	Black	1-Black, 1-Red

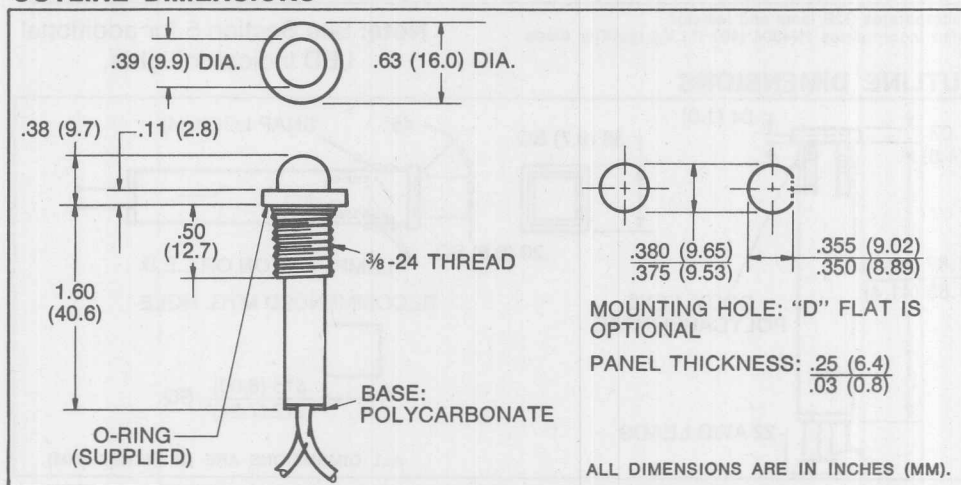
* Incorporates G2B lamp and resistor.

† Wire for neon is 18 AWG

LED SOLID STATE INDICATOR			
LENS COLOR	MODEL NO. FOR 12V	MODEL NO. FOR 24V	INCORPORATES LED
Red	6091M1-12V	6091M1-24V	4304H1
Green	6091M5-12V	6091M5-24V	4304H5
Yellow	6091M7-12V	6091M7-24V	4304H7
Internal Resistor (OHMS)	390	1000	

Note: Also incorporates 1N4004 (400 P.I.V.) rectifier diode. Red lead positive.

OUTLINE DIMENSIONS





OIL-TIGHT NON-RELAMPABLE NEON-LED INDICATOR LIGHT 3/8" DIA. MOUNTING HOLE

SERIES 6010QM, 6011QM, 6012QM, 6013QM, 6091QM

- Solid state lights complete with built-in current-limiting resistor and rectifier diode
- Meets NEMA Class 13
- UL recognized—CSA approved

FEATURES **Mounting:** .38 (9.65) min. dia. hole. Supplied with internal tooth lock washer and hex nut.

Terminals: Quick-connect, tinned brass .187 x .020

Lens: Polycarbonate

Bezel: Polished stainless steel. For black finish, add "X" after series letter(s).

Gaskets: Buna-N

Housing: Black nylon

UL FILE NO. E20325

CSA FILE NO. LR13346



Note: See Section 5 for additional LED Indicator Lights.

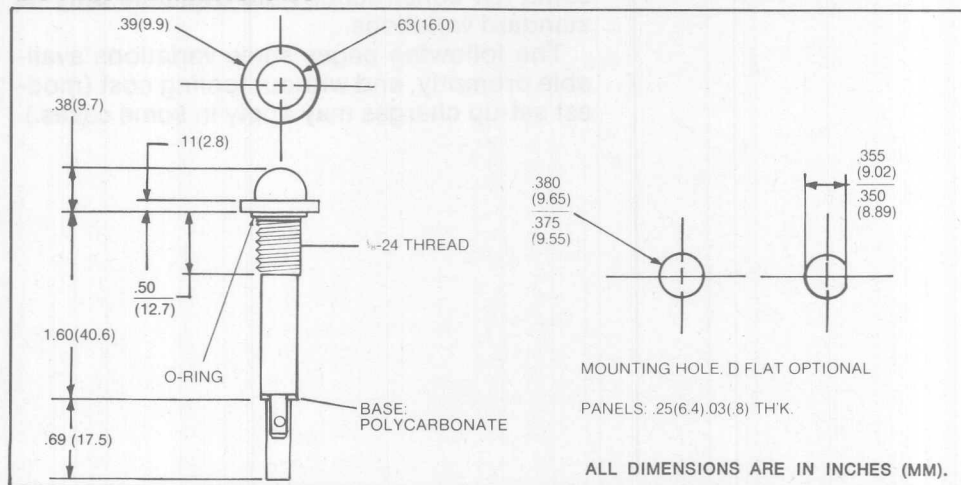
NEON		
LENS COLOR	MODEL NO. FOR 105-125VAC	MODEL NO. FOR 208-250VAC
Red	6010QM1	6011QM1
Amber	6010QM3	6011QM3
Green	6012QM5*	6013QM5*
Lamp	C2A+ Resistor	C2A+ Resistor

* Incorporates G2B lamp and resistor.

LED SOLID STATE INDICATOR			
LENS COLOR	MODEL NO. FOR 12V	MODEL NO. FOR 24V	INCORPORATES LED
Red	6091QM1-12V	6091QM1-24V	4304H1
Green	6091QM5-12V	6091QM5-24V	4304H5
Yellow	6091QM7-12V	6091QM7-24V	4304H7
Internal Resistor (ohms)	390	1000	

Note: Also incorporates 1N4004 (400 P.I.V.) rectifier diode. Anode (+): Marked above positive terminal.

OUTLINE DIMENSIONS





STANDARD VARIATIONS

STANDARD VARIATIONS

Catalog model non-relampable indicator lights are listed on the preceding pages. You are by no means limited to those specific models; every year IDI makes millions of non-relampable assemblies with specifications tailored to customer requirements.

The difference between "standard variation" and catalog model may be no more than an inch of lead length—any change in specification means a new model. Because there are so many variations available, we cannot code all of them into the model number. However, after you determine exact specifications for the assembly which meets your needs, we will assign a unique model number for ordering purposes.

Standard variations include lens shape; color, and imprint; mounting and termination; operating voltage, rated life, and circuit. The table following provides a guide to the options available with each series; please note that some IDI constructions are available **only** as standard variations.

The following pages show variations available promptly, and without tooling cost (modest set-up charges may apply in some cases.)



STANDARD VARIATIONS QUICK SPECIFICATION REFERENCE

Because there are so many variations available, we cannot code all of them into the model number. However, after you determine exact spe-

cifications for the assembly which meets your needs, we will assign a unique model number for ordering purposes.

Series	Mounting Holes	OFF-THE-SHELF			STANDARD VARIATIONS				
		Catalog Location	Lamps			Lens	Housing	Bezel	Termination
			Neon	Incnd	LED				
1000	1/2" Diameter	Pgs.8-4 to 8-14	X	X	X	Pg. 9-4	Pg. 9-13	Pg. 9-11	Pg. 9-11
2100	5/16" Diameter	Pgs.8-15 to 8-24	X	X	X	Pg. 9-5	Pg. 9-13	Pg. 9-11	Pg. 9-11
2300	19/32" / 13/32" Rectangular	Pgs.8-17-8-27	X	X		Pg. 9-6	Pg. 9-13	Pg. 9-11	Pg. 9-11
2600	7/8" or 1" Diameter	Pgs.8-29 to 8-32	X	X		Pg. 9-7	Pg. 9-13	Pg. 9-11	Pg. 9-11
2900	3/8", 5/16" or 1/2" Diameter	Pgs.8-25 to 8-26		X		Pg. 9-8	Pg. 9-13	Pg. 9-11	Pg. 9-11
3500	1 19/32" x 2 1/32" Rectangular	Not Offered				Pg. 9-9	Pg. 9-13	Pg. 9-11	Pg. 9-11
3700	5/16" Diameter	Not Offered				Pg. 9-7	Pg. 9-13	Pg. 9-11	Pg. 9-11
3900	7/32" Diameter	Pg. 5-9			X	Pg. 9-7	Pg. 9-13	Pg. 9-11	Pg. 9-11
4500	Behind panel mount with 1/4" button available	Not Offered				Pg. 9-7	Pg. 9-13	Pg. 9-11	Pg. 9-11
4700	1 1/64", 1/4" or 5/16" Diameter	Pg. 8-33	X	X		Pg. 3-37	Pg. 9-13	Pg. 9-11	Pg. 9-11
5900	5/16" x 5/16" Square	Pg. 8-34	X		X	NA	Pg. 9-13	Pg. 9-11	Pg. 9-11
6000	3/8" Diameter	Pg.8-35	X		X	NA	Pg. 9-13	Pg. 9-11	Pg. 9-11

For Standard Variation Lamp Section See Page 9-10.

HOW TO ORDER (Please specify all of these.)

- ☐ **Indicator Light Series** — Which of the indicator light assemblies series do you want?
- ☐ **Lens Shape & Color** — Normally transparent colors for neon and solid-state lamps; translucent for incandescent lamps unless you specify otherwise.
- ☐ **Operating Voltage** — Also tell us whether you will use AC or DC for low voltage applications.
- ☐ **Termination** — Standard leads will be supplied unless you specify otherwise.
- ☐ **Mounting** — Push-on speednut unless otherwise specified. For snap-fit you **must** specify panel thickness.
- ☐ **How Many Samples Needed?** — One unless otherwise specified.
- ☐ **Anticipated Production Usage?** — Estimated annual quantity.

(Specify only those items which apply to your needs.)

Imprint? (Include color)

Special Bezel Finish?

Special Lead Color or Insulation?

Extra Long Life Needed? (How long?)

High Temperature Housing Needed? (How hot?)

Space Problems? (How much room behind or in front of the panel do you have?)

Special Environmental Problems? (Gasketing needed?)

Please be sure to include name, date, company, address, city, state, zip code, and telephone.

Detailed dimension drawings of most constructions are available on request.

Send, call or FAX in your specifications to:

INDUSTRIAL DEVICES, INC.

260 Railroad Ave.

Hackensack, New Jersey 07601

Tel: (201) 489-8989

FAX: 201-489-6911



LENSES

LENSES

All lenses are available in polycarbonate (Lexan) in a full range of transparent and translucent colors. Many lenses are alternately available in nylon.

Transparent red, clear, amber or white polycarbonate; translucent red, amber or white nylon are recommended with neon lamps; green polycarbonate with green glow lamps; transparent polycarbonate in clear, red, green or yellow with LEDs, a full range of transparent or

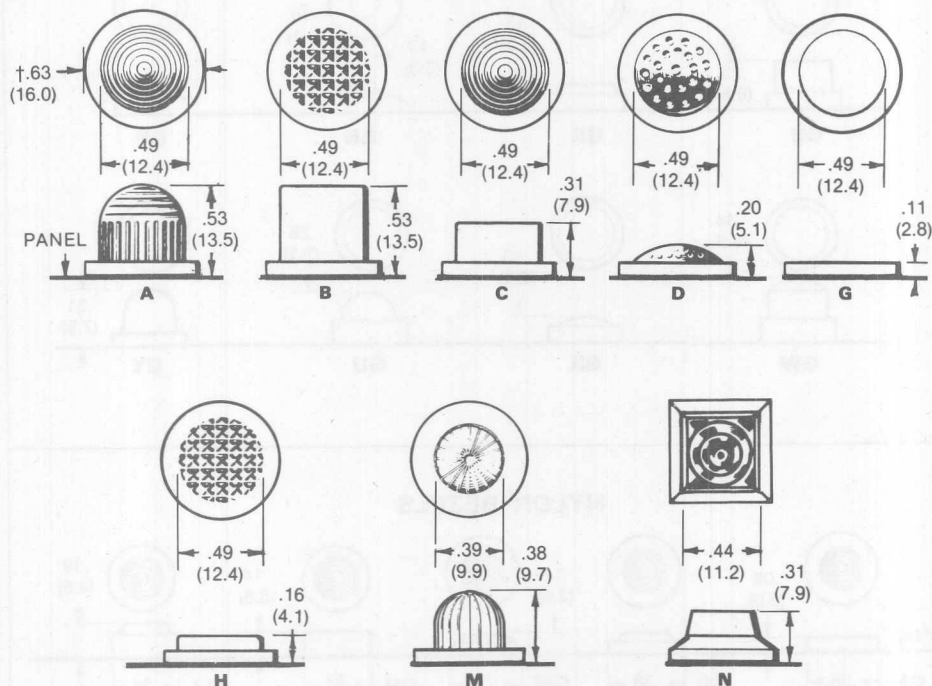
translucent polycarbonate lenses for incandescent lamps.

Lenses are available with a variety of treatments to diffuse light and minimize "hot spots". Some have molded in ribs or facets to provide a jewel-like appearance in transparent colors, others are stippled or frosted to spread light without interfering with imprint legibility.

Flat lenses such as LINE-O-LITE "LP" and "LT" can be polycarbonate film rather than molded.

OUTLINE DIMENSIONS

1000 SERIES



† COMMON TO ALL GROUPS

NOTE: VERTICAL DIMENSION GIVEN IS HEIGHT ABOVE PANEL.

NOTE: Lenses are not sold separately, they are for use in assemblies only.

ALL DIMENSIONS ARE IN INCHES (MM).



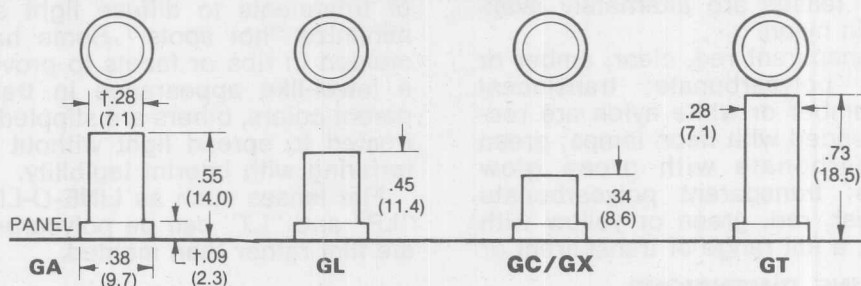
LENSES

LENSES

OUTLINE DIMENSIONS

2100 SERIES

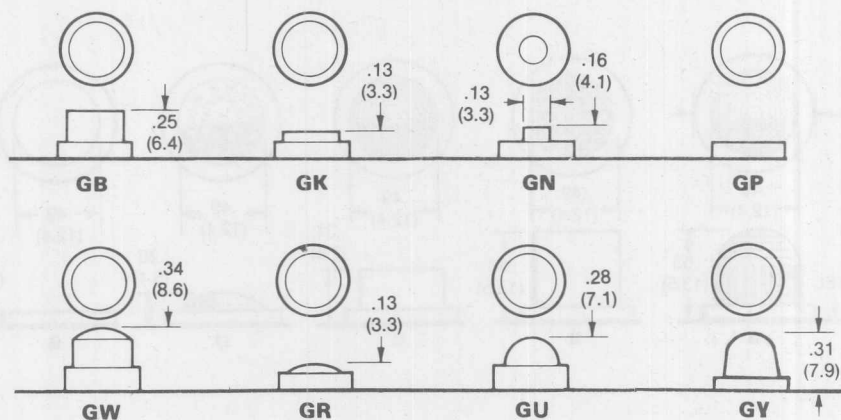
METAL BEZELS



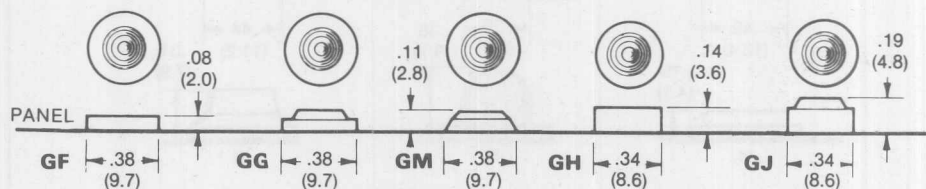
†COMMON TO ALL GROUPS

NOTE: GC-PLAIN TOP

GX-WITH LIGHT DIFFUSING RINGS



NYLON BEZELS



NOTE: Lenses are not sold separately, they are for use in assemblies only.

ALL DIMENSIONS ARE IN INCHES (MM).



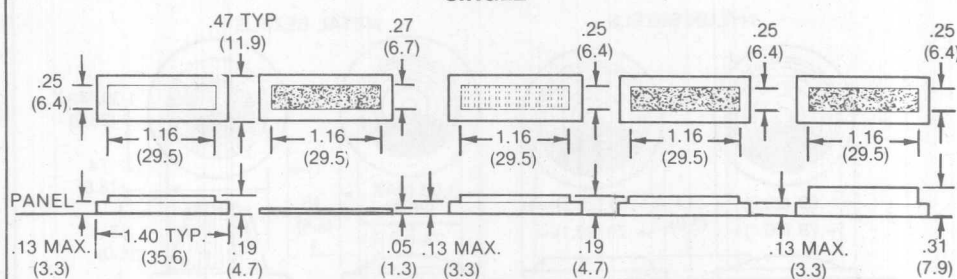
LENSES

LENSES

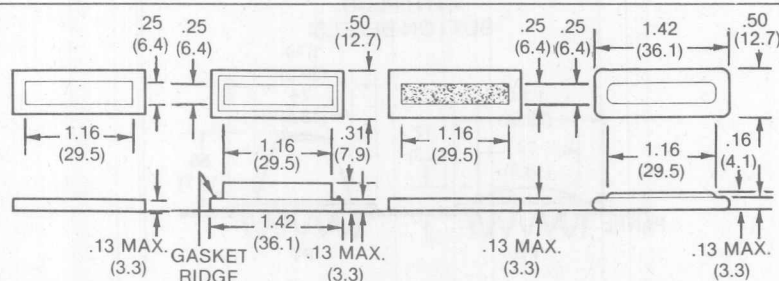
OUTLINE DIMENSIONS

2300 SERIES

SINGLE

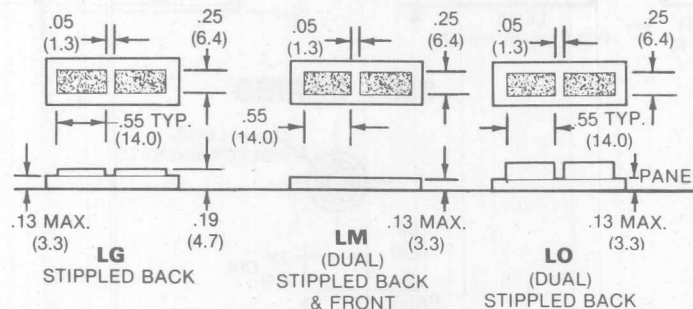


LA PLAIN BACK **LB** STIPPLED BACK **LC** RIBBED BACK **LD** STIPPLED BACK **LF** STIPPLED BACK



LP PLAIN BACK **LR** (BEZEL-1PC PLASTIC) PLAIN BACK **LT** STIPPLED BACK **LV** (BEZEL-1PC PLASTIC) STIPPLED BACK

DUAL



NOTE: Lenses are not sold separately, they are for use in assemblies only.

ALL DIMENSIONS ARE IN INCHES (MM).

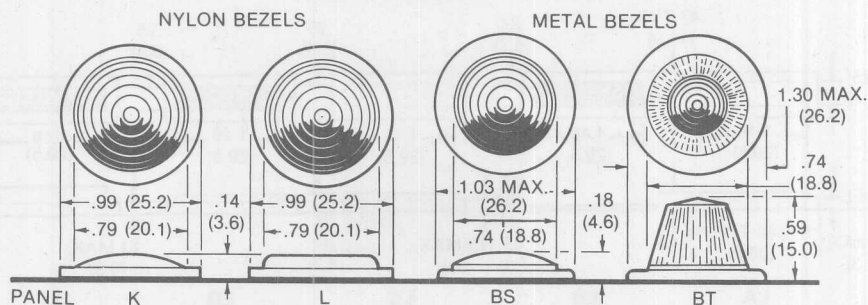


LENSES

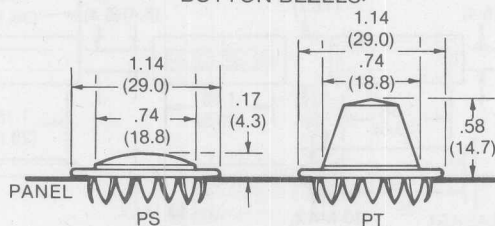
LENSES

OUTLINE DIMENSIONS

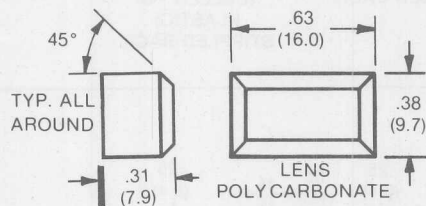
2600 SERIES



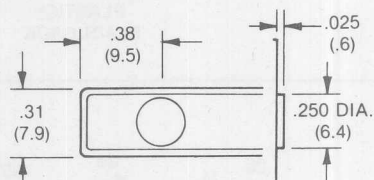
WITH PLUG BUTTON BEZELS:



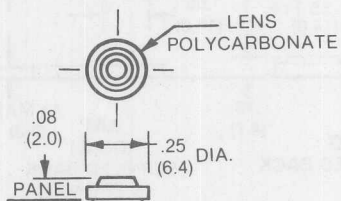
3700 SERIES



4500 SERIES



3900 SERIES



NOTE: Lenses are not sold separately, they are for use in assemblies only.

ALL DIMENSIONS ARE IN INCHES (MM).

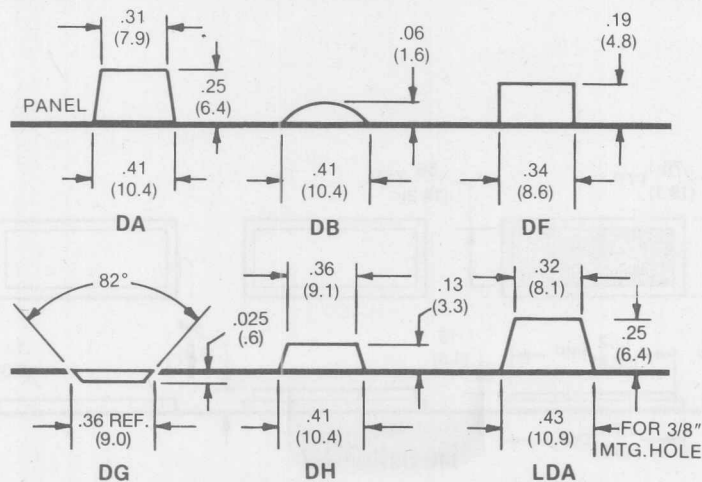


LENSES

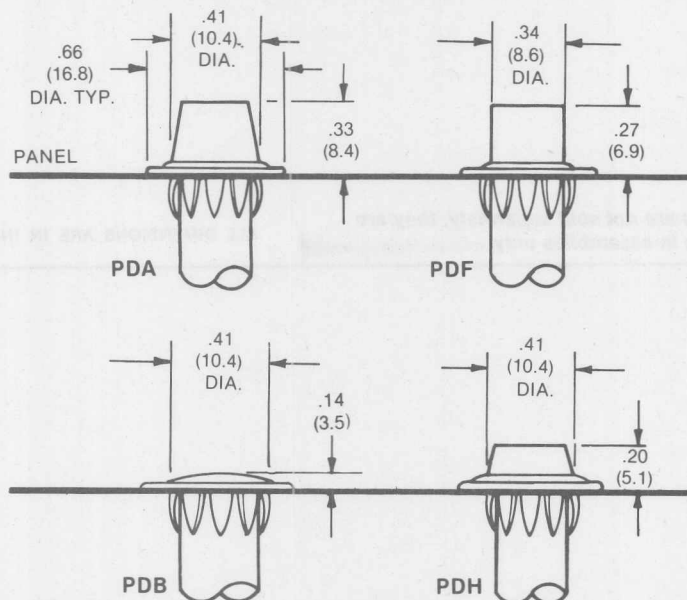
LENSES

OUTLINE DIMENSIONS

2900 SERIES SPEEDNUT OR SNAP-FIT MOUNTING



PLUG-BUTTON BEZEL



NOTE: Lenses are not sold separately, they are for use in assemblies only.

ALL DIMENSIONS ARE IN INCHES (MM).

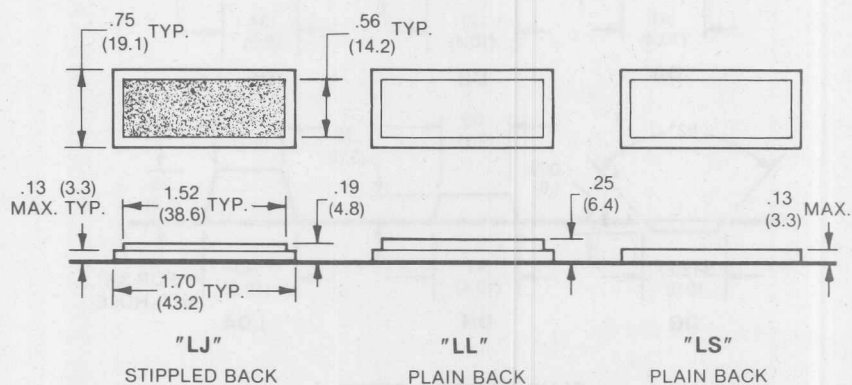


LENSES

LENSES

OUTLINE DIMENSIONS

3500 SERIES



NOTE: Lenses are not sold separately, they are for use in assemblies only.

ALL DIMENSIONS ARE IN INCHES (MM).



LAMPS AVAILABLE STANDARD VARIATIONS

OTHER LAMPS AVAILABLE

NEON

See Neon lamp section page 6-1.

Any IDI neon assembly may be supplied without a resistor (where appropriate current-limiting imped-

ance is incorporated in your circuit), or with a resistor included for specified service voltage or for extended life.

INCANDESCENT Other lamps available include:

NOMINAL VOLTAGE	LAMP NO.	DESIGN VOLTAGE	DESIGN AMPS	MSCP (Approx.)	RATED LIFE (Hrs.)
1V	1728	1.35	.06	.01	5,000
2V	2119	2.0	.06	.02	5,000
2V	2169	2.5	.35	.20	10,000
2V	1738	2.7	.06	.04	6,000
6V	1730	6.0	.04	.04	10,000
6V	2180	6.3	.04	.03	20,000
6V	1739	6.3	.075	.23	1,000
12V	2181	14.0	.20	.40	20,000
10V	1869	10.0	.014	.006	50,000 +
10V	2107	10.0	.04	.06	5,000
12V	2174	12.0	.04	.10	10,000
12V	2182	14.0	.08	.30	40,000
16V	2102	18.0	.04	.15	10,000
28V	2185	28.0	.04	.15	10,000
28V	8361	28.0	.065	.65	5,000

LAMPS AVAILABLE

SERIES	NEON	INCANDESCENT	LED	NOTES
1000	X	X	X	
2100	X	X	X	
2300	X	X		Dual lamps (in parallel) available for more uniform lighting
2600	X	X		
2900	X	X	X	
3500	X	X		Dual lamps (in parallel) available for more uniform lighting
3600	X	X		
3700	X	X		
3900	X	X	X	T-1 size neon, LED T-1 or T-1 1/4 incandescent
4500	X	X		
4700	X	X		
5900	X	X	X	
6000	X	X	X	

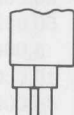


LEADS AND TERMINATIONS BEZELS

LEADS AND TERMINATIONS

SERIES	WIRE LEADS	.250 TERM	.187 TERM	NOTES
1000	X	X	X	Also notched solder terminal (see below)
2100	X		X	
2300	X	X	X	Also screw term. dual lamp versions available 3-lead (center common), 4-lead or three .250 term. dual housing (2350 Series) 3 term.
2600	X	X		Also screw term.
2900	X		X	
3500	X	X		Also screw term.
3600	X		X	
3700	X			
3900	X			Max. 24 AWG, .015 wall
4500			X	
4700	X	X		
5900	X			
6000	X		X	

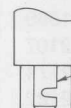
TERMINATION TYPES



WIRE
LEADS



QUICK-
CONNECT



NOTCHED
SOLDER

WIRE LEADS

UL and CSA listed pre-tinned stranded wire leads, #22 AWG (7/30) with 105°C PVC insulation is standard, available in black and colors.

Other wire options include #18 AWG, #20 AWG and #24 AWG; solid wire, prebonded stranded wire.

High temperature insulations

available include 150°C rated cross-linked polyolefin, Teflon, etc.

Lead length and termination to meet your application. Leads may be stripped any length or supplied with ring-tongue or quick-connect terminals.

Entire wire harnesses can be furnished.

TERMINALS

.187" quick-connect terminals are .020" thick brass, tinned, and may be used as solder terminals. .250"

quick-connect terminals are .032" thick brass, tinned.

BEZELS

Metal bezels normally supplied in polished stainless steel, are alternately available in black, bright-dipped brass, or other finishes. Nylon bezels (OMNI-GLOW 2600 Series, GLO-DOT 2100 and 3900 Series) normally supplied in

opaque white, also available in black and other colors. Please note that since the nylon bezel is part of the housing, lights with black nylon do not have as much light output as those with white bezels.



MOUNTING INFORMATION

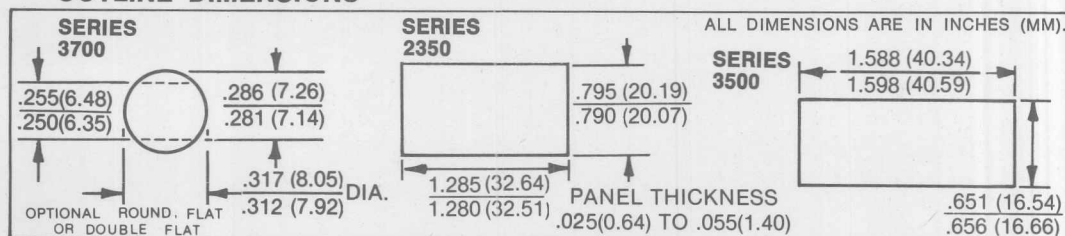
MOUNTING INFORMATION

Most series offer a choice of mounting means including snap-fit, push-on speednut, etc. Snap-fit is most economical for production applica-

tions. Speednuts offer fast, tamper-resistant installation for any panel thickness.

Series	Mounting Hole	ALTERNATE MOUNTING MEANS			Notes
		Speednut (See page 9-14)	Specific Snap-Fit	Universal Snap-Fit (Fits Variety of Panel Thicknesses)	
1000	1/2" Dia. Round or "D"	SN0461 (Alt: SN1264, SN1336)	Specify Panel Thickness	.020/.100 (.51/2.54) Standard Range .095/.135 (2.41/3.43) High Range	
2100	5/16" Dia. Round	SN1287	Specify Panel Thickness	None	
2300	1 1/32" x 1 1/32" Rectangular	SN1963	Specify Panel Thickness	.032/.100 (.81/2.54)	
2350	1 1/32" x 5/64" Rectangular (Dual housing)	None	Specify Panel Thickness	None	
2600	7/8" Dia. Round or "D"	SN2089	Specify Panel Thickness	None	
	1" Dia. Round	None	None	.080/.130 (2.03/3.30)	
2900	5/16" Dia. Round	SN1287	Specify Panel Thickness	.020/.062 (.51/1.57)	
	3/8" Dia. Round	SN1287	None	.025/.100 (.64/2.5)	LDA lens
	1/2" Dia. Round	None	None	.030/.095 (.76/2.41)	
3500	1 1/32" x 2 1/32" Rectangular	None	Specify Panel Thickness	None	
3600	55/64" x 5/16" Rectangular	None	None	.020/.130 (.51/3.30)	
3700	5/16" Dia. Round, "D", or double flat	SN1287	Specify Panel Thickness "D" hole only	None	
3900	7/32" Dia. Round	SN2763	None	.031/.062 (.79/1.57)	
4500	Special	None	None	None	Special user- supplied clip
4700	5/16" Dia., 1/4" Dia. 4.5 mm Dia. All Round	None	None	None	
5900	5/16" x 5/16" Square	None	None	.020/.130 (.5/3.3)	
6000	3/8" Dia. Round	None	None	None	

OUTLINE DIMENSIONS



Industrial Devices, Inc., 260 Railroad Ave., Hackensack, NJ 07601 • (201) 489-8989 • FAX: 201-489-6911



HOUSINGS

Many housings are available in different lengths depending on construction. Normally the shortest length which will accommodate the lamp and other components will be

supplied. Where behind-panel space is limited, GLO-DOT 2100 and 2900 Series can often be supplied with shorter housings by placing the current-limiting resistor in one lead.

MATERIALS AVAILABLE

SERIES	NYLON	POLYCARBONATE	POLYSULFONE	NOTES
1000	X		X	Also phenolic
2100	X		X	
2300	X		X	"Double-Depth" housing available for better light distribution
2600	X		X	
2900		X	X	Base is nylon
3500	X			
3600	X	X		
3700		X		
3900	X			
4500		X		
4700	X		X	
5900		X		
6000	X			

MATERIAL

Nylon rated 105°C., white is standard, opaque black and special colors also available.

Polycarbonate rated 105°C.

Polysulfone rated 140°C. Off-white is standard, opaque black available.

Phenolic rated 150°C. Black only.

GASKETING & POTTING

Most models with metal bezels are available with gasket seals between lens and bezel, providing a nominal splashproof construction. OMNI-GLOW 1000 Series is available with a closed-cell sponge gasket under

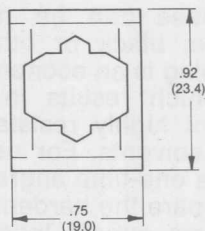
the bezel.

Most models may be supplied potted with clear silicone elastomer for waterproofing and/or cushioning of incandescent lamps.

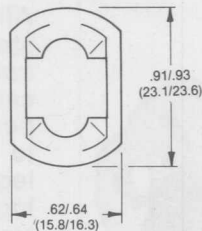


SPEEDNUTS

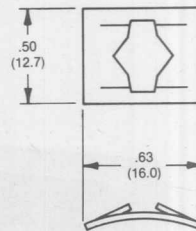
SN0461
For 1/2" Dia.



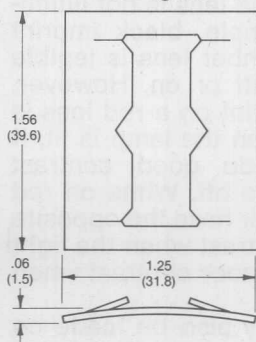
SN1264
For 1/2" Dia.
(with "D" Flat)



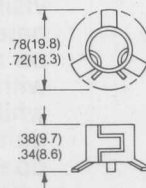
SN1287
For 3/8" Dia.



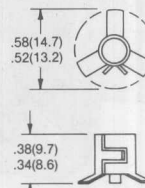
SN1963
For 1 3/32" x 1 3/32" Rectangular



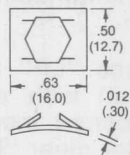
SN1336
For 1/2" Dia.



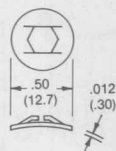
SN1220
For 1/4" Dia.



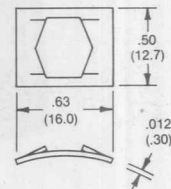
SN2212
For 1/4" Dia.



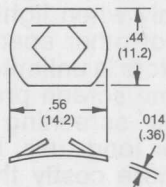
SN2763
For 1/32" Dia.



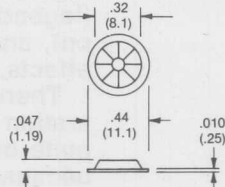
SN3486
For 3/8" Dia.



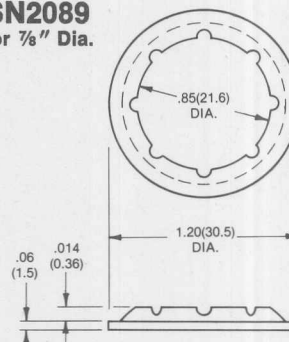
SN3678
For 1/4" Dia.



SN3775
For 3/32" Dia.



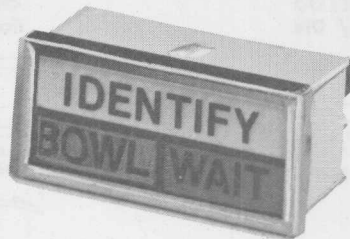
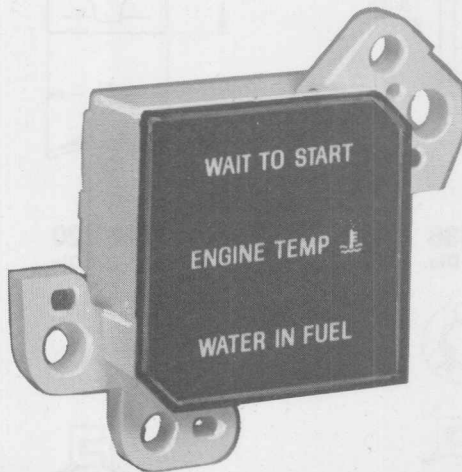
SN2089
For 7/8" Dia.



ALL DIMENSIONS ARE IN INCHES (MM).



IMPRINTING



HOT STAMPING

All flat-top lenses can be hot stamped in white, black or other colors. Hot stamping is an economical technique which results in a permanent imprint highly resistant to abrasion and solvents. For new legends there is a one-time engraving charge to prepare the hardened steel stamp. (Some curved lenses may also be hot-stamped, usually with higher initial tooling cost.)

Use of imprint color which contrasts with lens color permits high visibility when the lens is not illuminated. For example, black imprint on a white or amber lens is legible with the lamp off or on. However, while black imprint on a red lens is quite visible when the lamp is lit, it does not provide good contrast when the lamp is off. White on red or white on amber have the opposite effect: good contrast when the light is off, relatively poor contrast when the light is on.

Imprinting may also be made on the underside of the lens. This tends to obscure the legend until the lamp is lit. Black legend under red lens is the most effective combination.

SILK SCREENING

LINE-O-LITE flat lenses "LP" and "LT" may be supplied with silk-screened legend. Screened inserts may also be used under clear "LA" or "LL" lenses. Silk screening can be used to provide reverse imprints (background is opaque, only the legend lights), dead-front legends (legend is visible only when light is on), and a number of other special effects. Range of colors is unlimited.

There is a one-time screen preparation charge. Silk screening is quite economical for long runs, but because setup is more costly than for hotstamping, prices are somewhat higher for modest quantities.



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Although every effort has been made to list only models which are functionally interchangeable, physical differences may exist, and samples should be evaluated to assure that IDI parts will be satisfactory in your application. We will be happy to supply samples, no-charge.



IDI CROSS REFERENCE

Data Display

CALL OR FAX
FOR NO-CHARGE SAMPLES

Data Display Model	IDI Model #	Data Display Model	IDI Model #
125-ALP	4300F7LC	200-LRG	4301H1/5
125-BA5V	4302F3-5V	200-MA	4304H7
125-BG5V	4302F5-5V	200-MCA	4305H7
125-BR5V	4302F1-5V	200-MCG	4305H5
125-EWG	4318F5	200-MCR	4305H1
125-EWR	4318F1	200-MG	4304H5
125-EWY	4318F7	200-MR	4304H1
125-GLP	4300F5LC	200-MRG	4301H1/5
125-MA	4303F7	200-RAG	4361H1/5
125-MG	4303F5	200-RLP	4300H1LC
125-MR	4303F1	200-YLP	4300H7LC
125-R	4303F1	200H-ALP	4300H7LC
125-RLP	4300F1LC	200H-GLP	4300H5LC
125K-RG	4301F1/5	200H-RLP	4300H1LC
14PC110TR4-50	5360F1-5V	P205-MAZ-N	5111F7
180-BCA	4304S7	P205-MGZ-N	5111F5
180-BCG	4304S5	P205-MRZ-N	5111F1
180-BCR	4304S1	P205W-MAZ-N	5110F7
180-ECA	4304S7	P205W-MGZ-N	5110F5
180-ECG	4304S5	P205W-MRZ-N	5110F1
180-ECR	4304S1	P405-ALP	5101H7LC
180-ECY	4304S7	P405-BA5V	5101H3-5V
190-LA	4304H7	P405-BG5V	5101H5-5V
190-LG	4304H5	P405-BR5V	5101H1-5V
190-LR	4304H1	P405-GLP	5101H5LC
190-SR	4304H1	P405-MA-N	5101H7
200-BA	4304H3	P405-MG-N	5101H5
200-BA12V	4302H3-12V	P405-MR-N	5101H1
200-BA5V	4302H3-5V	P405-RLP	5101H1LC
200-BCG	4305H5	P405W-BA-N	5100H7
200-BCR	4305H1	P405W-BA12V	5102H3-12V
200-BG	4304H5	P405W-BA5V	5102H3-5V
200-BG12V	4302H5-12V	P405W-BG-N	5100H5
200-BG5V	4302H5-5V	P405W-BG12V	5102H5-12V
200-BR	4304H1	P405W-BG5V	5102H5-5V
200-BR12V	4302H1-12V	P405W-BR-N	5100H1
200-BR5V	4302H1-5V	P405W-BR12V	5102H1-12V
200-EA	4304H3	P405W-BR5V	5102H1-5V
200-ECA	4308H3	P405W-GLP	5100H5LC
200-ECG	4308H5	P405W-MA-N	5100H7
200-ECR	4308H1	P405W-MG-N	5100H5
200-ECY	4308H7	P405W-MR-N	5100H1
200-EG	4304H5	P405W-MRG-N	5100H1/5
200-ER	4304H1	P405W-RLP-NA	5100H1LC
200-EWA	4308H7	P405W-YLP-NA	5100H7LC
200-EWG	4308H5	PC080-A2	5350T7
200-EWR	4308H1	PC080-A5	5352T3-5V
200-EWY	4308H7	PC080-AL5	5352T3-5VLC
200-EY	4304H7	PC080-ALP	5350T7LC
200-GLP	4300H5LC	PC080-G2	5350T5



IDI CROSS REFERENCE

Data Display

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Data Display Model	IDI Model #	Data Display Model	IDI Model #
PC080-G5	5352T5-5V	PCL200-BR12V	5302H1-12V
PC080-GL5	5352T5-5VLC	PCL200-BR5V	5302H1-5V
PC080-GLP	5350T5LC	PCL200-GLP	5300H5LC
PC080-R2	5350T1	PCL200-MA	5300H7
PC080-R5	5352T1-5V	PCL200-MG	5300H5
PC080-RL5	5352T1-5VLC	PCL200-MR	5300H1
PC080-RLP	5350T1LC	PCL200-MRG	5300H5/1
PC110TY4-5V	5602F3-5V	PCL200-RLP	5300H1LC
PCH125-200-BA	5655F3	PCL200-YLP	5300H7LC
PCH125-200-BG	5655F5	PCL2004-BA	5640H3
PCH125-200BR	5655F1	PCL2004-BG	5640H5
PCH125-BA	5600F3	PCL2004-BR	5640H1
PCH125-BA5V	5602F3-5V	PCL2004-MG	5640H5
PCH125-BG	5600F5	PCL2004-MR	5640H1
PCH125-BG5V	5602F5-5V	PCT200-BA/BA	5670H3;3
PCH125-BR	5600F1	PCT200-BG/BG	5670H5;5
PCH125-BR5V	5602F1-5V	PCT200-BR/BR	5670H1;1
PCH125-EA-CW	5608F3	PCV200-BG	5381H5
PCH125-EG-CW	5608F5	PCV200-MA	5381H7
PCH125-ER-CW	5608F1	PCV200-MG	5381H5
PCH125-EY-CW	5608F7	PCV200-MR	5381H1
PCH125-MA	5600F7	PMC-2	4304MC
PCH125-MG	5600F5	PMC-3	4303MC
PCH125-MR	5600F1	PML30-CG	4335
PCH200-BG	5380H5	PML30-CR	4331
PCH200-MA	5380H7	PML30-CY	4337
PCH200-MG	5380H5	PML40-CG	4315
PCH200-MR	5380H1	PML40-CR	4311
PCL1254-BA	5360F3	PML40-CW	4312
PCL1254-BG	5360F5	PML40-CY	4317
PCL1254-BR	5360F1	PR405W-BA5H-NA	5102H3-5V
PCL1904-MG	5640E5	PR405W-BG5H-NG	5102H5-5V
PCL1904-MR	5640E1	PR405W-BR5H-NR	5102H1-5V
PCL200-BA12V	5302H3-12V	WB200-A12-6	4365W7-12V
PCL200-BA5V	5302H3-5V	WB200-BR12-6	4365W1-12V
PCL200-BG12V	5302H5-12V	WB200-G12-6	4365W5-12V
PCL200-BG5V	5302H5-5V		

Dialight

Dialight Model	IDI Model #	Dialight Model	IDI Model #
515-0004	4304MC	52-3196	2817
515-0006	4303MC	52-3197	2812
52-3191	2811	521-9165	4304S1
52-3192	2815	521-9173	4304S5
52-3193	2813	521-9174	4304S7
52-3194	2816	521-9175	4304H5
52-3195	2814	521-9176	4304H7



IDI CROSS REFERENCE

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Dialight Model	IDI Model #	Dialight Model	IDI Model #
521-9177	4301H1/5	550-0306-004	5640H7
521-9178	4361H1/5	550-0307	5300H7
521-9180	4300E1NF	550-0404	5381E1
521-9183	4302H1-5V	550-0405	5380E1
521-9185	4307T1	550-0405-004	5640E1
521-9186	4307T1	550-0406	5300H1
521-9190	4304S1	550-0406-004	5640E1
521-9195	4300T1LC	550-0407	5300H1
521-9200	4304S1	550-0504	5381H1-5V
521-9210	4303F5	550-0505	5380H1-5V
521-9211	4303F7	550-0505-004	5640H1-5V
521-9212	4304H1	550-0506	5302H1-5V
521-9215	4302F1-5V	550-0506-004	5640H1-5V
521-9216	4303F1	550-0507	5302H1-5V
521-9240	4304H1	550-0605	5380H1-12V
521-9246	4304H1	550-0605-004	5640H1-12V
521-9247	4305H1	550-0606	5302H1-12V
521-9248	4304H7	550-0606-004	5640H1-12V
521-9249	4305H7	550-0607	5302H1-12V
521-9250	4304H5	550-0704	5381H5-5V
521-9251	4305H5	550-0705	5380H5-5V
521-9253	4304S5	550-0705-004	5640H5-5V
521-9254	4304S7	550-0706	5302H5-5V
521-9264	4306R1	550-0706-004	5640H5-5V
521-9265	4306R7	550-0707	5302H5-5V
521-9266	4306R5	550-0804	5381H3-5V
521-9277	4307T5	550-0805	5380H3-5V
521-9279	4307T7	550-0805-004	5640H3-5V
521-9320	4300H1LC	550-0806	5302H3-5V
521-9321	4300H7LC	550-0806-004	5640H3-5V
521-9500-003	4308H1	550-0807	5302H3-5V
521-9503-002	4308H5	550-1104	5381H1LC
521-9505-002	4308H7	550-1105	5380H1LC
522-0123	5670H5;7	550-1105-004	5640H1LC
522-0331	5670H3-5V;1-5	550-1106	5300H1LC
522-0912	5670H1LC;5LC	550-1106-004	5640H1LC
549-0101	5340H1	550-1107	5300H1LC
549-0104	5340H1-5V	550-1204	5381H7LC
549-0201	5340H5	550-1205	5380H7LC
549-0301	5340H7	550-1205-004	5640H7LC
550-0204	5381H5	550-1206	5300H7LC
550-0205	5380H5	550-1206-004	5640H7LC
550-0205-004	5640H5	550-1207	5300H7LC
550-0206	5300H5	550-1304	5381H5LC
550-0206-004	5640H5	550-1305	5380H5LC
550-0207	5300H5	550-1305-004	5640H5LC
550-0304	5381H7	550-1306	5300H5LC
550-0305	5380H7	550-1306-004	5640H5LC
550-0305-004	5640H7	550-1307	5300H5LC
550-0306	5300H7	550-2204	5381H5



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Dialight Model	IDI Model #	Dialight Model	IDI Model #
550-2205	5380H5	551-0307	5650F7
550-2205-004	5640H5	551-0307-004	5360F7
550-2206	5300H5	551-0405	5650X1
550-2206-004	5640H5	551-0407	5650X1
550-2207	5300H5	551-0407-004	5360F1
550-2304	5381H7	551-0505	5652F1-5V
550-2305	5380H7	551-0507	5652F1-5V
550-2305-004	5640H7	551-0507-004	5360F1-5V
550-2306	5300H7	551-0605	5652F5-5V
550-2306-004	5640H7	551-0607	5652F5-5V
550-2307	5300H7	551-0607-004	5360F5-5V
550-2404	5381H1	551-0705	5652F3-5V
550-2405	5380H1	551-0707	5652F3-5V
550-2405-004	5640H1	551-0707-004	5360F3-5V
550-2406	5300H1	551-1105	5650F1LC
550-2406-004	5640H1	551-1107	5650F1LC
550-2407	5300H1	551-1107-004	5360F1LC
550-3004	5381H5/1	551-1205	5650F7LC
550-3005	5380H5/1	551-1207	5650F7LC
550-3006	5300H5/1	551-1207-004	5360F7LC
550-3007	5300H5/1	551-1305	5650F5LC
550-5104	5381H1	551-1307	5650F5LC
550-5105	5380H1	551-1307-004	5360F5LC
550-5106	5300H1	552-0111	5670H1;1
550-5106-004	5640H1	552-0112	5670H1;5
550-5107	5300H1	552-0113	5670H1;7
550-5204	5381H5	552-0121	5670H5;1
550-5205	5380H5	552-0122	5670H5;5
550-5206	5300H5	552-0123	5670H5;7
550-5206-004	5640H5	552-0131	5670H7;1
550-5207	5300H5	552-0132	5670H7;5
550-5304	5381H7	552-0133	5670H7;7
550-5305	5380H7	552-0211	5670H1;1
550-5306	5300H7	552-0212	5670H1;5
550-5306-004	5640H7	552-0213	5670H1;7
550-5307	5300H7	552-0221	5670H5;1
550-5404	5381H3	552-0222	5670H5;5
550-5405	5380H3	552-0223	5670H5;7
550-5406	5300H3	552-0231	5670H7;1
550-5407	5300H3	552-0232	5670H7;5
550-5506	5308H1	552-0233	5670H7;7
550-5507	5308H1	552-0311	5670H1-5V;1-5
550-5606	5308H5	552-0312	5670H1-5V;5-5
550-5607	5308H5	552-0313	5670H1-5V;3-5
550-5706	5308H7	552-0321	5670H5-5V;1-5
550-5707	5308H7	552-0322	5670H5-5V;5-5
551-0205	5650F5	552-0323	5670H5-5V;3-5
551-0207	5650F5	552-0332	5670H3-5V;5-5
551-0207-004	5360F5	552-0333	5670H3-5V;3-5
551-0305	5650F7	552-0811	5670H1;1

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Dialight Model	IDI Model #	Dialight Model	IDI Model #
552-0812	5670H1;5	555-2301	5350T5
552-0813	5670H1;7	555-2303	5352T5-5VLC
552-0821	5670H5;1	555-2401	5350T7
552-0822	5670H5;5	555-2403	5352T3-5VLC
552-0823	5670H5;7	555-3001	5370T1 *
552-0831	5670H7;1	555-3002	5370T1
552-0832	5670H7;5	555-3003	5372T1-5VLC
552-0833	5670H7;7	555-3004	5372T1-5VLC
552-0911	5670H1LC;1LC	555-3007	5372T1-5VLC
552-0912	5670H1LC;5LC	555-3009	5372T1-5VLC
552-0913	5670H1LC;7LC	555-3301	5370T5
552-0921	5670H5LC;1LC	555-3303	5372T5-5VLC
552-0922	5670H5LC;5LC	555-3401	5370T7
552-0923	5670H5LC;7LC	555-3403	5372T3-5VLC
552-0931	5670H7LC;1LC	558-0101-001	5111F1
552-0932	5670H7LC;5LC	558-0101-003	5110F1
552-0933	5670H7LC;7LC	558-0102-001	5111F1-5V
553-0111	5680F1;1	558-0102-003	5110F1-5V
553-0112	5680F1;5	558-0103-001	5111F1-12V
553-0113	5680F1;7	558-0103-003	5110F1-12V
553-0121	5680F5;1	558-0201-001	5111F5
553-0122	5680F5;5	558-0201-003	5110F5
553-0123	5680F5;7	558-0202-001	5111F5-5V
553-0131	5680F7;1	558-0202-003	5110F5-5V
553-0132	5680F7;5	558-0203-001	5111F5-12V
553-0133	5680F7;7	558-0203-003	5110F5-12V
553-0211	5680F1LC;1LC	558-0301-001	5111F7
553-0212	5680F1LC;5LC	558-0301-003	5110F7
553-0213	5680F1LC;7LC	558-0302-001	5111F3-5V
553-0221	5680F5LC;1LC	558-0302-003	5110F3-5V
553-0222	5680F5LC;5LC	558-0303-001	5111F3-12V
553-0223	5680F5LC;7LC	558-0303-003	5110F3-12V
553-0231	5680F7LC;1LC	558-1101-001	5111F1LC
553-0232	5680F7LC;5LC	558-1101-003	5110F1LC
553-0233	5680F7LC;7LC	558-1201-001	5111F5LC
553-0311	5680F1-5V;1-5	558-1201-003	5110F5LC
553-0312	5680F1-5V;5-5	558-1301-001	5111F7LC
553-0313	5680F1-5V;3-5	558-1301-003	5110F7LC
553-0321	5680F5-5V;1-5	559-0101-001	5101H1
553-0322	5680F5-5V;5-5	559-0101-003	5100H1
553-0323	5680F5-5V;3-5	559-0102-001	5101H1-5V
553-0331	5680F3-5V;1-5	559-0102-003	5102H1-5V
553-0332	5680F3-5V;5-5	559-0103-001	5101H1-12V
553-0333	5680F3-5V;3-5	559-0103-003	5102H1-12V
555-2001	5350T1 *	559-0201-001	5101H5
555-2002	5350T1	559-0201-003	5100H5
555-2003	5352T1-5VLC	559-0202-001	5101H5-5V
555-2004	5352T1-5VLC	559-0202-003	5102H5-5V
555-2007	5352T1-5VLC	559-0203-001	5101H5-12V



IDI CROSS REFERENCE

Dialight Model

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Dialight Model	IDI Model #	Dialight Model	IDI Model #
559-0203-003	5102H5-12V	561-1101-090	5330H1LC
559-0301-001	5101H7	561-1201-060	5335H7LC
559-0301-003	5100H7	561-1201-090	5330H7LC
559-0302-001	5101H3-5V	561-1301-060	5335H5LC
559-0302-003	5102H3-5V	561-1301-090	5330H5LC
559-0303-001	5101H3-12V	561-5101-060	5335H1
559-0303-003	5102H3-12V	561-5101-070	5331H1
559-1101-001	5101H1LC	561-5101-090	5330H1
559-1101-003	5100H1LC	561-5201-060	5335H5
559-1201-001	5101H5LC	561-5201-070	5331H5
559-1201-003	5100H5LC	561-5201-090	5330H5
559-1301-001	5101H7LC	561-5301-060	5335H7
559-1301-003	5100H7LC	561-5301-070	5331H7
559-2101-001	5101H1	561-5301-090	5330H7
559-2101-003	5100H1	561-5401-060	5335H3
559-2201-001	5101H5	561-5401-090	5330H3
559-2201-003	5100H5	564-0100-111	5693F1;1;1
559-2301-001	5101H7	564-0100-222	5693F5;5;5
559-2301-003	5100H7	564-0100-333	5693F7;7;7
559-3001-003	5100H1/5	564-0200-111	5693F1LC;1LC
559-5101-001	5101H1	564-0200-222	5693F5LC;5LC;
559-5101-003	5100H1	564-0200-333	5693F7LC;7LC;
559-5201-001	5101H5	566-0207	5635D5
559-5201-003	5100H5	566-0307	5635D7
559-5301-001	5101H7	566-0407	5635D1
559-5301-003	5100H7	566-3507	5637D1/5
561-1101-060	5335H1LC	81-1059-01-102	2803

H/P Opto

H/P Opto Model	IDI Model #	H/P Opto Model	IDI Model #
5082-4100	4307T1	5082-4650	4304H1
5082-4101	4307T1	5082-4655	4304H1
5082-4150	4307T7	5082-4657	4305H1
5082-4160	4307T1	5082-4658	4305H1
5082-4190	4307T5	5082-4670	4306R1
5082-4403	4304H1	5082-4684	4303F1
5082-4440	4304H1	5082-4707	4304MC
5082-4487	4304S1	5082-4850	4304H1
5082-4488	4304S1	5082-4855	4304H1
5082-4550	4304H7	5082-4880	4304H1
5082-4555	4304H7	5082-4881	4304H1
5082-4557	4305H7	5082-4882	4304H1
5082-4558	4305H7	5082-4883	4304H1
5082-4570	4306R7	5082-4884	4304H1
5082-4584	4303F7	5082-4885	4304H1



IDI CROSS REFERENCE

H/P Opto

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H/P Opto Model	IDI Model #	H/P Opto Model	IDI Model #
5082-4886	4304H1	HLMP-1700	4300F1LC
5082-4887	4304H1	HLMP-1719	4300F7LC
5082-4888	4304H1	HLMP-1790	4300F5LC
5082-4950	4304H5	HLMP-3001-010	5300H1
5082-4955	4304H5	HLMP-3105	4302H1-5V
5082-4957	4305H5	HLMP-3105-010	5302H1-5V
5082-4958	4305H5	HLMP-3112	4302H1-12V
5082-4970	4306R5	HLMP-3112-010	5302H1-12V
5082-4984	4303F5	HLMP-3300	4304H1
HLMA-CL00	4400H13	HLMP-3300-010	5300H1
HLMA-DG00	4400H1	HLMP-3315	4305H1
HLMA-DL00	4400H3	HLMP-3350	4304S1
HLMP-0103	4304MC	HLMP-3390	4304S1
HLMP-0300	4306R1	HLMP-3400	4304H7
HLMP-0301	4306R1	HLMP-3400-010	5300H7
HLMP-0400	4306R7	HLMP-3415	4305H7
HLMP-0401	4306R7	HLMP-3450	4304S7
HLMP-0503	4306R5	HLMP-3490	4304S7
HLMP-0504	4306R5	HLMP-3502	4304H5
HLMP-1000	4303F1	HLMP-3502-010	5300H5
HLMP-1002-010	5650F1	HLMP-3517	4305H5
HLMP-1100	4302F1-5V	HLMP-3590	4304S5
HLMP-1100-010	5652F1-5V	HLMP-3600	4302H1-5V
HLMP-1300	4303F1	HLMP-3600-010	5302H1-5V
HLMP-1301	4303F1	HLMP-3601	4302H1-12V
HLMP-1301-010	5650F1	HLMP-3601-010	5302H1-12V
HLMP-1302	4303F1	HLMP-3650	4302H3-5V
HLMP-1340	4318F1	HLMP-3650-010	5302H3-5V
HLMP-1385	4303F21	HLMP-3651	4302H3-12V
HLMP-1400	4303F7	HLMP-3651-010	5302H3-12V
HLMP-1401	4303F7	HLMP-3680	4302H5-5V
HLMP-1401-010	5650F7	HLMP-3680-010	5302H5-5V
HLMP-1402	4303F7	HLMP-3681	4302H5-12V
HLMP-1440	4318F7	HLMP-3681-010	5302H5-12V
HLMP-1485	4303F27	HLMP-3750	4308H1
HLMP-1503	4303F5	HLMP-3850	4308H7
HLMP-1503-010	5650F5	HLMP-3950	4308H5
HLMP-1523	4303F5	HLMP-4100	4310H1
HLMP-1540	4318F5	HLMP-4101	4310H1
HLMP-1585	4303F25	HLMP-4600	4304H1
HLMP-1600	4302H1-5V	HLMP-4700	4300H1LC
HLMP-1600-010	5652F1-5V	HLMP-4700-010	5300H1LC
HLMP-1601	4302F1-12V	HLMP-4719	4300H7LC
HLMP-1620	4302F3-5V	HLMP-4719-010	5300H7LC
HLMP-1620-010	5652F3-5V	HLMP-4740	4300H5LC
HLMP-1621	4302F3-12V	HLMP-4740-010	5300H5LC
HLMP-1640	4302F5-5V	HLMP-5000	5300E1
HLMP-1640-010	5652F5-5V	HLMP-5005	5302H1-5V
HLMP-1641	4302F5-12V	HLMP-5030	5300H1



IDI CROSS REFERENCE

H/P Opto

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H/P Opto Model	IDI Model #	H/P Opto Model	IDI Model #
HLMP-5040	5300H7	HLMP-D400	4304H3
HLMP-5050	5300H5	HLMP-D401	4304H3
HLMP-5060	5302H1-5V	HLMP-K400	4303F3
HLMP-5070	5302H3-5V	HLMP-K401	4303F3
HLMP-5080	5302H5-5V	HLMP-K402	4303F3
HLMP-6000-010	5350T1	HLMP-M200	4309K1
HLMP-6300	4307T1	HLMP-M201	4309K1
HLMP-6300-010	5350T1	HLMP-M300	4309K7
HLMP-6400	4307T7	HLMP-M301	4309K7
HLMP-6400-010	5350T7	HLMP-M500	4309K5
HLMP-6500	4307T5	HLMP-M501	4309K5
HLMP-6500-010	5350T5	HLMP-Q400	4307T3
HLMP-6600	4302T1-5V	HLMP-S200	4306D11
HLMP-6600-010	5352T1-5V	HLMP-S201	4306D11
HLMP-6620	4302T1-5VLC	HLMP-S300	4306D17
HLMP-6620-010	5352T1-5VLC	HLMP-S301	4306D17
HLMP-6700	4302T3-5V	HLMP-S500	4306D15
HLMP-6700-010	5352T3-5V	HLMP-S501	4306D15
HLMP-6720	4302T3-5VLC	HLMP-T200	4390G1
HLMP-6720-010	5352T3-5VLC	HLMP-T300	4390G7
HLMP-6800	4302T5-5V	HLMP-T400	4390G3
HLMP-6800-010	5352T5-5V	HLMP-T500	4390G5
HLMP-6820	4302T5-5VLC	HSMC-T600	7000X3-2K
HLMP-6820-010	5352T5-5VLC	HSMC-T700	7000X3-8K
HLMP-7000	4300T1LC	HSMC-T600	7000X5-2K
HLMP-7019	4300T7LC	HSMC-T700	7000X5-8K
HLMP-7040	4300T5LC	HSMH-T600	7000X11-2K
HLMP-8100	4310H21	HSMH-T700	7000X11-8K
HLMP-8101	4310H21	HSMS-T600	7000X1-2K
HLMP-8102	4310H31	HSMS-T700	7000X1-8K
HLMP-8103	4310H41	HSMT-T600	7000X7-2K
HLMP-D105	4308H1	HSMT-T700	7000X7-8K

Internat'l Devices

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Internat'l Devices Model	IDI Model #	Internat'l Devices Model	IDI Model #
ID124-G	4303F5	ID5501-UG	4308H5
ID124-R	4303F1	ID5501-UR	4308H1
ID124-Y	4303F7	ID5501-UY	4308H7
ID50154	4304S1	ID56154	4304S1
ID52154	4304S5	ID5721	4300E5NF
ID5252	4304H5	ID5731	4300E7NF
ID5253	4305H5	ID5741	4300E1NF
ID53154	4304S7	ID5752	4305H1
ID5352	4304H7	ID5753	4304H1
ID5353	4305H7		



IDI CROSS REFERENCE

Leecraft

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Leecraft Model	IDI Model #	Leecraft Model	IDI Model #
31-2111	2330D1	32G18-2113	1090C3-28V
31-2111T	2330QD1	32G18-2115	1090C4-28V
31-2113	2330D3	32G18-2211	1090A1-28V
31-2113T	2330QD3	32G18-2212	1090A5-28V
31-2115	2330D4	32G18-2213	1090A3-28V
31-2115T	2330QD4	32G18-2214	1090A6-28V
31-2215	2330D4	32G18-2215	1090A4-28V
31-G18-2112T	2390QD5-28V	32G18-2311	1090D1-28V
32-2111	1050C1	32G18-2312	1090D5-28V
32-2111T	1050QC1	32G18-2313	1090D3-28V
32-2112	1052C5	32G18-2315	1090D4-28V
32-2112T	1052QC5	32G3-2111	1090C1-12V
32-2113	1050C3	32G3-2112	1090C5-12V
32-2113T	1050QC3	32G3-2113	1090C3-12V
32-2115	1050C4	32G3-2115	1090C4-12V
32-2115T	1050QC4	32G3-2211	1090A1-12V
32-211T	1050QC1	32G3-2212	1090A5-12V
32-2211	1050A1	32G3-2213	1090A3-12V
32-2211T	1050QA1	32G3-2214	1090A6-12V
32-2212	1052A5	32G3-2215	1090A4-12V
32-2212T	1052QA5	32G3-2311	1090D1-12V
32-2213	1050A3	32G3-2312	1090D5-12V
32-2213T	1050QA3	32G3-2313	1090D3-12V
32-2215	1050A4	32G3-2315	1090D4-12V
32-2215T	1050QA4	32G5-2111	1090C1-28V
32-2217	1050A2	32G5-2112	1090C5-28V
32-2311	1030D1	32G5-2113	1090C3-28V
32-2311T	1030QD1	32G5-2115	1090C4-28V
32-2312	1032D5	32G5-2211	1090A1-28V
32-2312T	1032QD5	32G5-2212	1090A5-28V
32-2313	1030D3	32G5-2213	1090A3-28V
32-2313T	1030QD3	32G5-2214	1090A6-28V
32-2315	1030D4	32G5-2215	1090A4-28V
32-2315T	1030QD4	32G5-2311	1090D1-28V
32G1-2111	1090C1-6V	32G5-2312	1090D5-28V
32G1-2112	1090C5-6V	32G5-2313	1090D3-28V
32G1-2113	1090C3-6V	32G5-2315	1090D4-28V
32G1-2114	1090C6-6V	32R-2111	1050C1
32G1-2115	1090C4-6V	32R-2111T	1050QC1
32G1-2211	1090A1-6V	32R-2112	1052C5
32G1-2212	1090A5-6V	32R-2112T	1052QC5
32G1-2213	1090A3-6V	32R-2113	1050C3
32G1-2214	1090A6-6V	32R-2113T	1050QC3
32G1-2215	1090A4-6V	32R-2115	1050C4
32G1-2311	1090D1-6V	32R-2115T	1050QC4
32G1-2312	1090D5-6V	32R-2117	1050C2
32G1-2313	1090D3-6V	32R-2211	1050A1
32G1-2315	1090D4-6V	32R-2211T	1050QA1
32G18-2111	1090C1-28V	32R-2212	1052A5
32G18-2112	1090C5-28V	32R-2212T	1052QA5



IDI CROSS REFERENCE

Leecraft

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Leecraft Model	IDI Model #	Leecraft Model	IDI Model #
32R-2213	1050A3	32RG5-2911	1090N1-28V
32R-2213T	1050QA3	35-2111	1051C1
32R-2215	1050A4	35-2111T	1051QC1
32R-2215T	1050QA4	35-2211	1051A1
32R-2217	1050A2	35-2211T	1051QA1
32R-2311	1030D1	35-2311	1031D1
32R-2311T	1030QD1	35-2311T	1031QD1
32R-2312	1032D5	35R-2111	1051C1
32R-2312T	1032QD5	35R-2111T	1051QC1
32R-2313	1030D3	35R-2211	1051A1
32R-2313T	1030QD3	35R-2211T	1051QA1
32R-2315	1030D4	35R-2311	1031D1
32R-2315T	1030QD4	35R-2311T	1031QD1
32R-2911	1050N1	36EN-2111	2150A1
32R-2911T	1050QN1	36EN-2112	2152A5
32R-2912	1052N5	36EN-2113	2150A3
32R-2912T	1052QN5	36EN-2114	2152A6
32R-2913	1050N3	36EN-2115	2150A4
32R-2913T	1050QN3	36EN-2117	2150A2
32R-2915	1050N4	36EN-2311	2120A1
32R-2915T	1050QN4	36HEN-2111	2151A1
32R-2917	1050N2	36HEN-2112	2153A5
32RG-2111	1090C1-12V	36HEN-2113	2151A3
32RG1-2111	1090C1-6V	36HEN-2114	2153A6
32RG1-2112	1090C5-6V	36HEN-2115	2151A4
32RG1-2113	1090C3-6V	36HEN-2117	2151A2
32RG1-2114	1090C6-6V	36N-2111	2150A1
32RG1-2115	1090C4-6V	36N-2311	2110A1
32RG1-2211	1090A4-6V	36N-2312	2112A5
32RG1-2311	1090D1-6V	36N-2313	2110A3
32RG1-2312	1090D5-6V	36N-2315	2110A4
32RG1-2313	1090D3-6V	36N-2317	2110A2
32RG1-2314	1090D6-6V	36UHN-2311	2121A1
32RG1-2315	1090D4-6V	36UHN-2313	2121A3
32RG1-2911	1090N1-6V	36UHN-2315	2121A4
32RG18-2111	1090C1-28V	36UN-1311	2120A1
32RG18-2211	1090A1-28V	36UN-2311	2120A1
32RG18-2311	1090D1-28V	36UN-2313	2120A3
32RG18-2911	1090N1-28V	36UN-2315	2120A4
32RG3-2111	1090C1-12V	36URN-2111	2150A1
32RG3-2112	1090C5-12V	36URN-2112	2152A5
32RG3-2113	1090C3-12V	36URN-2113	2150A3
32RG3-2114	1090C6-12V	36URN-2114	2152A6
32RG3-2115	1090C4-12V	36URN-2115	2150A4
32RG3-2211	1090A1-12V	36URN-2117	2150A2
32RG3-2311	1090D1-12V	36URN-2311	2120A1
32RG3-2911	1090N1-12V	39UG1-2111	2194A1-6V
32RG5-2111	1090C1-28V	39UG18-2111	2194A1-28V
32RG5-2211	1090A1-28V	39UG3-2111	2194A1-12V
32RG5-2311	1090D1-28V	39UG5-2111	2194A1-28V



IDI CROSS REFERENCE

Leecraft

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Leecraft Model	IDI Model #	Leecraft Model	IDI Model #
37UHR-2111	2151A1	62-2131	4700A1
37UHR-2112	2153A5	62-2133	4700A3
37UHR-2113	2151A3	62-2135	4700A4
37UHR-2114	2153A6	65G1-0131	2970D1-6V
37UHR-2115	2151A4	65G3-0131	2970D1-28V
37UHR-2117	2151A2	65G5-0131	2970D1-28V
37UR-2111	2150A1	69-35	4130
37UR-2113	2150A3	L101DRG	4301H1/5
37UR-2114	2152A6	L111CG	4305H5
37UR-2115	2150A4	L111CR	4305H1
37UR-2117	2150A2	L111CY	4305H7
37URG1-2111	2194A1-6V	L111DA	4304H3
37URG18-2111	2194A1-28V	L111DG	4304H5
37URG3-2111	2194A1-12V	L111DG-5V	4302H5-5V
37URG5-2111	2194A1-28V	L111DR	4304H1
41ENG3-2111	2194A1-12V	L111DRG	4301H1/5
41ENG3-2112	2194A5-12V	L111DY	4304H7
41ENG3-2113	2194A3-12V	L111DY-5V	4302H3-5V
41ENG3-2115	2194A4-12V	L121CG	4308H5
41ENG5-2111	2194A1-28V	L121CR	4308H1
41ENG5-2112	2194A5-28V	L121CY	4308H7
41ENG5-2113	2194A3-28V	L121DG	4304H5
41ENG5-2115	2194A4-28V	L121DR	4304H1
41NG1-1311	2195A1-6V	L121DY	4304H7
41NG3-1311	2195A1-12V	L131CG	4308H5
41NG3-2311	2195A1-12V	L131CR	4308H1
41NG3-2312	2195A5-12V	L131CY	4308H7
41NG3-2313	2195A3-12V	L131DG	4300H5LC
41NG3-2315	2195A4-12V	L131DR	4300H1LC
41NG5-2311	2195A1-28V	L131DY	4300H7LC
41NG5-2312	2195A5-28V	L210DRG	4301H1/5
41NG5-2313	2195A3-28V	L291DG	4304S5
41NG5-2315	2195A4-28V	L291DR	4304S1
45HRN-2111	2151QA1	L291DY	4304S7
45HRN-2112	2153QA5	L311DG	4303F5
45HRN-2113	2151QA3	L311DR	4303F1
45HRN-2115	2151QA4	L311DY	4303F7
45RN-2111	2150QA1	L321DG	4303F5
45RN-2112	2152QA5	L321DR	4303F1
45RN-2113	2150QA3	L321DY	4303F7
45RN-2115	2150QA4	L32R-G12-2212	1091M5-12V
45RNG3-2111	2194QA1-12V	L32R-G12-2212T	1091QM5-12V
45RNG5-2111	2194QA1-28V	L32R-G24-2212	1091M5-24V
53-07	4110	L32R-G24-2212T	1091QM5-24V
53-207	4120	L32R-G6-2212	1091M5-6V
53-35	4141	L32R-R12-2211	1091M1-12V
62-0131	4700A1	L32R-R12-2211T	1091QM1-12V
62-0132	4702A5	L32R-R24-2211	1091M1-24V
62-0133	4700A3	L32R-R24-2211T	1091QM1-24V
62-0135	4700A4	L32R-R6-2211	1091M1-6V



IDI CROSS REFERENCE

Leecraft

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Leecraft Model	IDI Model #	Leecraft Model	IDI Model #
L32R-Y12-2116T	1091QM7-12V	L59D-R2-T	5101H1
L32R-Y12-2216	1091M7-12V	L59D-R2-W	5100H1
L32R-Y24-2116	1091M7-24V	L59D-R6-W	5102H1-5V
L32R-Y24-2116T	1091QM7-24V	L59D-Y12-W	5102H3-12V
L32R-Y6-2216	1091M7-6V	L59D-Y2-T	5101H7
L381DR	4303F1	L59D-Y2-W	5100H7
L39UR-G12-2112	2191L5-12V	L59U-G2-W	5100H5
L39UR-G24-2112	2191L5-24V	L59U-R2-W	5100H1
L39UR-G6-2112	2191L5-6V	L59U-Y2-W	5100H7
L39UR-R12-2111	2191L1-12V	L59UD-G2-W	5100H5
L39UR-R24-2111	2191L1-24V	L59UD-G6-W	5102H5-5V
L39UR-R6-2111	2191L1-6V	L59UD-R12-W	5102H1-12V
L39UR-Y12-2116	2191L7-12V	L59UD-R2-W	5100H1
L39UR-Y24-2116	2191L7-24V	L59UD-R6-W	5102H1-5V
L39UR-Y6-2116	2191L7-6V	L59UD-Y12-W	5102H3-12V
L401DG	4307T5	L59UD-Y2-W	5100H7
L401DR	4307T1	L59UD-Y6-Y	5102H3-5V
L401DY	4307T7	L611DG	5300H5
L411DG	4307T5	L611DR	5300H1
L411DR	4307T1	L611DRG	5300H5/1
L411DY	4307T7	L611DY	5300H7
L41EN-G12-2112	2191L5-12V	L613DG	5650F5
L41EN-G24-2112	2191L5-24V	L613DR	5650F1
L41EN-G6-2112	2191L5-6V	L613DY	5650F7
L41EN-R12-2111	2191L1-12V	L614DR	5350T1
L41EN-R24-2111	2191L1-24V	L621DG	5300H5
L41EN-R6-2111	2191L1-6V	L621DR	5300H1
L41EN-Y12-2116	2191L7-12V	L621DY	5300H7
L41EN-Y24-2116	2191L7-24V	L624DR-5V	5352T1-5V
L41EN-Y6-2116	2191L7-6V	L631DG	5300H5LC
L45RN-G12-2112	2191QL5-12V	L631DR	5300H1LC
L45RN-G24-2112	2191QL5-24V	L631DY	5300H7LC
L45RN-G6-2112	2191QL5-6V	L633DG	5650F5LC
L45RN-R12-2111	2191QL1-12V	L633DR	5650F1LC
L45RN-R24-2111	2191QL1-24V	L633DY	5650F7LC
L45RN-R6-2111	2191QL1-6V	L810G	4315
L45RN-Y12-2116	2191QL7-12V	L810R	4311
L45RN-Y24-2116	2191QL7-24V	L810WW	4312
L45RN-Y6-2116	2191QL7-6V	L810Y	4317
L511DG	4306R5	L811G	4325
L511DR	4306R1	L811R	4321
L511DY	4306R7	L811WW	4322
L59-G12-W	5102H5-12V	L811Y	4327
L59-G2-W	5100H5	L812G	4335
L59-R2-W	5100H1	L812R	4331
L59-Y2-W	5100H7	L812Y	4337
L59D-G12-W	5102H5-12V	L820B	4304MC
L59D-G2-T	5101H5	LB611DGG	5670H5:5
L59D-G2-W	5100H5	LB611DGR	5670H5:1
L59D-G6-W	5102H5-5V	LB611DGY	5670H5:7



IDI CROSS REFERENCE

Leecraft

CALL OR FAX
FOR NO-CHARGE SAMPLES

Leecraft Model	IDI Model #	Leecraft Model	IDI Model #
LB611DRG	5670H1:5	LB611DYG	5670H7:5
LB611DRR	5670H1:1	LB611DYR	5670H7:1
LB611DRY	5670H1:7	LB611DYY	5670H7:7

Littlefuse

Littlefuse Model	IDI Model #	Littlefuse Model	IDI Model #
730AD	2853	970-602X-92WRN	2195A1-6V
730GD	2855	970-602X-92WWN	2195A4-6V
730RD	2851	970-603X-92WAN	2195A3-12V
740AN	2813	970-603X-92WGN	2195A5-12V
740BN	2816	970-603X-92WRN	2195A1-12V
740CN	2812	970-603X-92WWN	2195A4-12V
740GN	2815	970-604X-92WAN	2195A3-28V
740RN	2811	970-604X-92WGN	2195A5-28V
740WN	2814	970-604X-92WRN	2195A1-28V
740YN	2817	970-604X-92WWN	2195A4-28V
870-029-001	SN1220	970-656B-92WGN	2112A5
930-404X	2802	970-657B-92WBN	2112A6
930-405X	2803	970-670A-92WAN	2110A3
961-656B-90WGN	2332D5	970-670A-92WCN	2110A2
961-656E-90WGN	2333D5	970-670A-92WRN	2110A1
961-657B-90WBN	2332D6	970-670A-92WWN	2110A4
961-657E-90WBN	2333D6	970-956B-92WGN	2112QA5
961-670A-90WAN	2330D3	970-957B-92WBN	2112QA6
961-670A-90WRN	2330D1	970-970A-92WAN	2110QA3
961-670A-90WWN	2330D4	970-970A-92WCN	2110QA2
961-671T-90WAN	2331D3	970-970A-92WRN	2110QA1
961-671T-90WRN	2331D1	970-970A-92WWN	2110QA4
961-671T-90WWN	2331D4	971-602X-03WRN	2194A1-6V
961-804X-90WAN	2390QD3-28V	971-656B-03WGN	2152A5
961-804X-90WGN	2390QD5-28V	971-657B-03WBN	2152A6
961-804X-90WRN	2390QD1-28V	971-660K-03WRN	2191L1-24V
961-804X-90WWN	2390QD4-28V	971-660K-06WRN	2191U1-24V
961-856B-90WGN	2332QD5	971-660M-03WRN	2191L1-6V
961-857B-90WBN	2332QD6	971-660M-06WRN	2191U1-6V
961-870A-90WAN	2330QD3	971-660Z-03WRN	2191L1-12V
961-870A-90WRN	2330QD1	971-660Z-06WRN	2191U1-12V
961-870A-90WWN	2330QD4	971-666K-03WGN	2191L5-24V
961-8711-90WAN	2331QD3	971-666K-06WGN	2191U5-24V
961-871T-90WRN	2331QD1	971-666M-03WGN	2191L5-6V
970-602X-92WAN	2195A3-6V	971-666M-06WGN	2191U5-6V
970-602X-92WGN	2195A5-6V	971-666Z-03WGN	2191L5-12V

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IDI CROSS REFERENCE

Littlefuse

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Littlefuse Model	IDI Model #	Littlefuse Model	IDI Model #
971-666Z-06WGN	2191U5-12V	981-603X-96WGN	1090C5-12V
971-668K-03WYN	2191L7-24V	981-603X-96WRN	1090C1-12V
971-668K-06WYN	2191U7-24V	981-603X-96WWN	1090C4-12V
971-668M-03WYN	2191L7-6V	981-603X-98WBN	1090A6-12V
971-668M-06WYN	2191U7-6V	981-603X-98WGN	1090A5-12V
971-668Z-03WYN	2191L7-12V	981-603X-98WRN	1090A1-12V
971-668Z-06WYN	2191U7-12V	981-603X-98WWN	1090A4-12V
971-670A-03WAN	2150A3	981-603X-99WAN	1090A3-12V
971-670A-03WCN	2150A2	981-603X-99WGN	1090N5-12V
971-670A-03WRN	2150A1	981-603X-99WRN	1090N1-12V
971-670A-03WWN	2150A4	981-603X-99WWN	1090N4-12V
971-960K-03WRN	2191QL1-24V	981-604X-95WAN	1090D3-28V
971-960K-06WRN	2191QU1-24V	981-604X-95WGN	1090D5-28V
971-960Z-03WRN	2191QL1-12V	981-604X-95WRN	1090D1-28V
971-960Z-06WRN	2191QU1-12V	981-604X-96WAN	1090C3-28V
971-966K-03WGN	2191QL5-24V	981-604X-96WGN	1090C5-28V
971-966K-06WGN	2191QU5-24V	981-604X-96WRN	1090C1-28V
971-966Z-03WGN	2191QL5-12V	981-604X-96WWN	1090C4-28V
971-966Z-06WGN	2191QU5-12V	981-604X-98WAN	1090A3-28V
971-968K-03WYN	2191QL7-24V	981-604X-98WBN	1090A6-28V
971-968K-06WYN	2191QU7-24V	981-604X-98WGN	1090A5-28V
971-968Z-03WYN	2191QL7-12V	981-604X-98WRN	1090A1-28V
971-968Z-06WYN	2191QU7-12V	981-604X-98WWN	1090A4-28V
981-602X-95WAN	1090D3-6V	981-604X-99WAN	1090N3-28V
981-602X-95WGN	1090D5-6V	981-604X-99WGN	1090N5-28V
981-602X-95WRN	1090D1-6V	981-604X-99WRN	1090N1-28V
981-602X-95WWN	1090D4-6V	981-604X-99WWN	1090N4-28V
981-602X-96WAN	1090C3-6V	981-615X-99WAN	1090N3-28V
981-602X-96WBN	1090C6-6V	981-615X-99WGN	1090N5-28V
981-602X-96WGN	1090C5-6V	981-615X-99WRN	1090N1-28V
981-602X-96WRN	1090C1-6V	981-615X-99WWN	1090N4-28V
981-602X-98WAN	1090A3-6V	981-656B-95WGN	1032D5
981-602X-98WBN	1090A6-6V	981-656B-96WGN	1052C5
981-602X-98WGN	1090A5-6V	981-656B-98WGN	1052A5
981-602X-98WRN	1090A1-6V	981-656B-99WGN	1052N5
981-602X-98WWN	1090A4-6V	981-656E-95WGN	1033D5
981-602X-99WAN	1090N3-6V	981-656E-96WGN	1053C5
981-602X-99WGN	1090N5-6V	981-656E-98WGN	1053A5
981-602X-99WRN	1090N1-6V	981-657B-95WBN	1032D6
981-602X-99WWN	1090N4-6V	981-657B-96WBN	1052C6
981-603X-95WAN	1090D3-12V	981-657B-98WBN	1052A6
981-603X-95WGN	1090D5-12V	981-657E-98WBN	1053A6
981-603X-95WRN	1090D1-12V	981-670A-95WAN	1030D3
981-603X-95WWN	1090D4-12V	981-670A-95WRN	1030D1
981-603X-96WAN	1090C3-12V	981-670A-95WWN	1030D4



IDI CROSS REFERENCE

Littlefuse

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Littlefuse Model	IDI Model #	Littlefuse Model	IDI Model #
981-670A-96WAN	1050C3	981-770A-95WRN	1030QD1
981-670A-96WCN	1050C2	981-770A-95WWN	1030QD4
981-670A-96WRN	1050C1	981-770A-96WAN	1050QC3
981-670A-96WWN	1050C4	981-770A-96WCN	1050QC2
981-670A-98WAN	1050A3	981-770A-96WRN	1050QC1
981-670A-98WCN	1050A2	981-770A-96WWN	1050QC4
981-670A-98WRN	1050A1	981-770A-98WAN	1050QA3
981-670A-98WWN	1050A4	981-770A-98WCN	1050QA2
981-670A-99WAN	1050N3	981-770A-98WRN	1050QA1
981-670A-99WCN	1050N2	981-770A-98WWN	1050QA4
981-670A-99WRN	1050N1	981-770A-99WAN	1050QN3
981-670A-99WWN	1050N4	981-770A-99WRN	1050QN1
981-671T-98WAN	1051A3	981-770A-99WWN	1050QN4
981-671T-98WCN	1051A2	981-771T-95WAN	1031QD3
981-671T-98WRN	1051A1	981-771T-95WRN	1031QD1
981-671T-98WWN	1051A4	981-771T-95WWN	1031QD4
981-756B-96WGN	1052QC5	981-771T-96WAN	1051QC3
981-756B-99WGN	1052QN5	981-771T-96WRN	1051QC1
981-756E-96WGN	1053QC5	981-771T-96WWN	1051QC4
981-756E-98WGN	1053QA5	981-771T-98WAN	1051QA3
981-757B-98WBN	1052QA6	981-771T-98WRN	1051QA1
981-757E-98WBN	1053QA6	981-771T-98WWN	1051QA4
981-770A-95WAN	1030QD3		

Lite-On

Lite-On Model	IDI Model #	Lite-On Model	IDI Model #
LTL-001B	4304MC	LTL-3211A	4306D11
LTL-10203W	4300E1NF	LTL-3223A	4306R1
LTL-10233-W	4300E5NF	LTL-3231A	4306D15
LTL-10253W	4300E7NF	LTL-3233A	4306R5
LTL-201	4303F1	LTL-3251A	4306D17
LTL-231	4303F5	LTL-3253A	4306R7
LTL-233	4304H5	LTL-4201	4303F1
LTL-251	4303F7	LTL-4201R1	4302F1-5V
LTL-253	4304H7	LTL-4201R2	4302F1-12V
LTL-283CKH3	4310H1	LTL-4203	4304H1
LTL-293	4304H3	LTL-4204	4305H1
LTL-298E	4301H1/1	LTL-4223R1	4302H1-5V
LTL-298VJ	4301H1/5	LTL-4223R2	4302H1-12V
LTL-307CK	4308H1	LTL-4231	4303F5
LTL-307ELC	4300H1LC	LTL-4231R1	4302F5-5V



IDI CROSS REFERENCE

Lite-On Model

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Lite-On Model	IDI Model #	Lite-On Model	IDI Model #
LTL-4231R2	4302F5-12V	LTL-433HR	4306D11
LTL-4233	4304H5	LTL-433Y	4306D17
LTL-4233R1	4302H5-5V	LTL-503-11	5300E1
LTL-4233R2	4302H5-12V	LTL-503-14	5640E1
LTL-4234	4305H5	LTL-52RG	4361H1/5
LTL-4251	4303F7	LTL-533-11	5300E5
LTL-4251R1	4302F3-5V	LTL-533-14	5640E5
LTL-4251R2	4302F3-12V	LTL-553-11	5300E7
LTL-4253	4304H7	LTL-553-14	5640E7
LTL-4253R1	4302H3-5V	LTL-603-1	5101H1
LTL-4254	4305H7	LTL-633-1	5101H5
LTL-425LR2	4302H3-12V	LTL-653-1	5101H7
LTL-4262N	4318F1	LTL-93BGA1	4307T5
LTL-4268	4308H1	LTL-93BHRA1	4307T1
LTL-433EA	4306D23	LTL-93BYA1	4307T7
LTL-433G	4306D15		

VCH (Chicago Min)

VCH (Chicago Min) Model	IDI Model #	VCH (Chicago Min) Model	IDI Model #
105-025 RED	1050A1	550-0406-004	5640E1
116A	SN1287	550-2205	5380H5
25P-306 RED	2811	550-2305	5380H7
25P-307 RED	2811	550-2405	5380H1
25P-326 AMBER	2813	553-0306	5300E7
25P-326 CLEAR	2812	6047-001-707 RED	2990D1-12V
25P-326 GREEN	2815	6063-005-534	21120A5
25P-326 RED	2811	6073-000-534 AMBER	10300D3
25P-606 RED	2841	6073-000-534 RED	10300D1
25P-607 RED	2841	6073-000-534 WHITE	10300D4
25P-626 RED	2851	6073-000-634 RED	10500C1
4772	4110	6073-001-534 RED	1030D1
4777	4100	6073-001-634 RED	1050C1
4779-002	4130	6082-002-304	2191U1-6V
550-0205	5380E5	6082-004-304	2191U7-6V
550-0206	5300E5	6082-005-304	2191U5-6V
550-0206-004	5640E5	6234-001-596 RED	1050C1
550-0305	5380E7	6293-000-184 AMBER	10300D3
550-0306-004	5640E7	6293-000-184 GREEN	10320D5
550-0405	5380E1	6293-000-184 RED	10300D1
550-0406	5300E1	6293-000-184 WHITE	10300D4

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IDI CROSS REFERENCE

VCH (Chicago Min)

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VCH (Chicago Min) Model	IDI Model #	VCH (Chicago Min) Model	IDI Model #
6293-003-184 GREEN	1032D5	CM4-383B	4305H5
6293-003-184 RED	1030D1	CM4-384B	4305H5
6295-000-184 GREEN	1033QD5	CM4-384B-2	4305H5
6295-000-184 RED	1031QD1	CM4-43A	4303F1
6295-003-184 GREEN	1033D5	CM4-43B	4303F1
6295-003-184 RED	1031D1	CM4-544A	4303F7
6342-001-505A	1091QM1-6V	CM4-544B	4303F7
6342-002-505R	1091QM1-6V	CM4-582B	4305H7
6342-301-505A	1091M7-6V	CM4-582B-Z	4305H7
6342-302-505R	1091M1-6V	CM4-583B	4305H7
6344-001-505A	1091QM7-12V	CM4-584B	4304H7
6344-002-505R	1091QM1-12V	CM4-584B-2	4304H7
6344-301-505A	1091M7-12V	CM4-6B	4304MC
6344-302-505R	1091M1-12V	CM4-73A	4304S1
6346-001-505A	1091QM7-24V	CM4-80B	4304H1
6346-002-505R	1091QM1-24V	CM4-81B	4304H1
6346-301-505A	1091M7-24V	CM4-82B	4304H1
6346-302-505R	1091M1-24V	CM4-84B	4304H1
6386-001-607 AMBER	Z194A3-6V	CM4-84B-1	4304H1
6386-001-607 GREEN	Z194A5-6V	CM4-84B-2	4304H1
6386-001-607 RED	Z194A1-6V	CM4-85B	4304H1
6386-001-607 WHITE	Z194A4-6V	CM4-86B	4304H1
6387-001-607 RED	Z194A1-12V	CMB5352 (4-582B)	4305H7
6387-001-607 GREEN	Z194A5-12V	CMB5353 (4-584B)	4304H7
6388-001-607 RED	Z194A1-28V	CMD269	4306R1
6388-001-607 GREEN	Z194A5-28V	CMD3350	4308H7
6396-001-507 RED	Z195A1-6V	CMD3450	4308H5
6396-001-607 RED	Z194A1-6V	CMD369	4306R5
6397-001-507 RED	Z195A1-12V	CMD3750	4308H1
6397-001-607 RED	Z194A1-12V	CMD50	4307T1
6398-001-507 RED	Z195A1-28V	CMD52	4307T7
6398-001-607 RED	Z194A1-28V	CMD5274C	4303F5
6483-401-603 AMBER	Z150A3	CMD53	4307T5
6483-401-603 CLEAR	Z150A2	CMD53123	4306D7
6483-401-603 RED	Z150A1	CMD5352 (4-582B)	4305H7
6493-001-583 RED	Z110A1	CMD5353 (4-584B)	4304H7
6493-003-583	Z110A3	CMD5374C	4303F7
6493-005-583	Z112A5	CMD54	4307T1
6493-405-603	Z152A5	CMD54123	4306D5
763	SN1220	CMD5491	4301H1/5
CM4-244B	4303F1	CMD569	4306R7
CM4-282B	4305H1	CMD57123	4306D1
CM4-282B-2	4305H1	CMD5752 (4-282B)	4305H1
CM4-283B	4305H1	CMD5753 (4-204B)	4304H1
CM4-284B	4304H1	CMD5774C	4303F1
CM4-284B-2	4304H1	CMD64520	4305H5
CM4-344A	4303F5	CMD64521	4305H5
CM4-344B	4303F5	CMD64530	4304H5
CM4-382B	4305H5	CML-10380	SN1220
CM4-382B-2	4305H5	CMP52 (4-6B)	4304MC

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IDI CROSS REFERENCE

Solico

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Solico Model	IDI Model #	Solico Model	IDI Model #
1K14LAN1	4700A3	3SF5NGB4	2194A5-12V
1K14LGX1	4702A5	3SF5NGB5	2194A5-28V
1K14LRN1	4700A1	3SF5NRB1	2194A1-6V
1K14LWN1	4700A4	3SF5NRB2	2194A1-6V
3LF4LAN1	2110A1	3SF5NRB4	2194A1-12V
3LF4LAN2	2111A3	3SF5NRB5	2194A1-28V
3LF4LBZ1	2112A6	3SF5NWB1	2194A4-6V
3LF4LBZ2	2112A6	3SF5NWB2	2194A4-6V
3LF4LCN1	21110A2	3SF5NWB4	2194A4-12V
3LF4LCN2	2111A2	3SF5NWB5	2194A4-28V
3LF4LGX1	2112A5	3WD4NAB1	2990D3-6V
3LF4LGX2	2113A5	3WD4NAB2	2990D3-6V
3LF4LRN1	2110A1	3WD4NAB4	2990D3-12V
3LF4LRN2	2111A1	3WD4NAB5	2990D5-28V
3LF4LWN1	2110A4	3WD4NBB1	2990D6-6V
3LF4LWN2	2111A4	3WD4NBB2	2990D6-6V
3LF4NAB1	2195A3-6V	3WD4NBB4	2990D6-12V
3LF4NAB2	2195A3-6V	3WD4NBB5	2990D6-28V
3LF4NAB4	2195A3-12V	3WD4NGB1	2990D5-6V
3LF4NAB5	2195A3-28V	3WD4NGB2	2990D5-6V
3LF4NGB2	2195A5-6V	3WD4NGB4	2990D5-12V
3LF4NGB4	2195A5-12V	3WD4NGB5	2990D5-28V
3LF4NGB5	2195A5-28V	3WD4NRB1	2990D1-6V
3LF4NRB1	2195A1-6V	3WD4NRB2	2990D1-6V
3LF4NRB2	2195A1-6V	3WD4NRB4	2990D1-12V
3LF4NRB4	2195A1-12V	3WD4NRB5	2990D1-28V
3LF4NRB5	2195A1-28V	3WD4NWB1	2990D4-6V
3LF4NWB1	2195A4-6V	3WD4NWB2	2990D4-6V
3LF4NWB2	2195A4-6V	3WD4NWB4	2990D4-12V
3LF4NWB4	2195A4-12V	3WD4NWB5	2990D4-28V
3LF4NWB5	2195A4-28V	5LD1LAN1	1050A3
3LF5LAN1	2150A3	5LD1LAN2	1051A3
3LF5LAN2	2151A3	5LD1LCN1	1050A2
3LF5LB21	2152A6	5LD1LCN2	1051A2
3LF5LBZ2	2153A6	5LD1LGX1	1052A5
3LF5LCN1	2150A2	5LD1LGX2	1053A5
3LF5LCN2	2151A2	5LD1LRN1	1050A1
3LF5LGX1	2152A5	5LD1LRN2	1051A1
3LF5LGX2	2153A5	5LD1LWN1	1050A4
3LF5LRN1	2150A1	5LD1LWN2	1051A4
3LF5LRN2	2151A1	5LF2LAN1	1050C3
3LF5LWN1	2150A4	5LF2LAN2	1051C3
3LF5LWN2	2151A4	5LF2LCN1	1050C2
3LF5LCN1	2110A2	5LF2LCN2	1051C2
3SF5NAB1	2194A3-6V	5LF2LGX1	1052C5
3SF5NAB2	2194A3-6V	5LF2LGX2	1053C5
3SF5NAB4	2194A3-12V	5LF2LRN1	1050C1
3SF5NAB5	2194A3-28V	5LF2LRN2	1051C1
3SF5NGB1	2194A5-6V	5LF2LWN1	1050C4
3SF5NGB2	2194A5-6V	5LF2LWN2	1051C4



IDI CROSS REFERENCE

Solico

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Solico Model	IDI Model #	Solico Model	IDI Model #
5LF3LAN1	1030D3	5SF3NAB1	1090D3-6V
5LF3LAN2	1031D3	5SF3NAB2	1090D3-6V
5LF3LGX1	1032D5	5SF3NAB4	1090D3-12V
5LF3LGX2	1033D5	5SF3NAB5	1090D3-28V
5LF3LRN1	1030D1	5SF3NGB1	1090D5-6V
5LF3LRN2	1031D1	5SF3NGB2	1090D5-6V
5LF3LWN1	1030D4	5SF3NGB4	1090D5-12V
5LF3LWN2	1031D4	5SF3NGB5	1090D5-28V
5LS1LAN1	1050N3	5SF3NRB1	1090D1-6V
5LS1LAN2	1051N3	5SF3NRB2	1090D1-6V
5LS1LCN1	1050N2	5SF3NRB4	1090D1-12V
5LS1LCN2	1051N2	5SF3NRB5	1090D1-28V
5LS1LGX1	1052N5	5SF3NWB1	1090D4-6V
5LS1LGX2	1053N5	5SF3NWB2	1090D4-6V
5LS1LRN1	1050N1	5SF3NWB4	1090A4-12V
5LS1LRN2	1051N1	5SF3NWB5	1090D4-28V
5LS1LWN1	1050N4	5SS1NAB1	1090N3-6V
5LS1LWN2	1051N4	5SS1NAB2	1090N3-6V
5SD1NAB1	1090A3-6V	5SS1NAB4	1090N4-12V
5SD1NAB2	1090A3-6V	5SS1NAB5	1090N3-28V
5SD1NAB4	1090A3-12V	5SS1NGB1	1090N5-6V
5SD1NAB5	1090A3-28V	5SS1NGB2	1090N5-6V
5SD1NGB1	1090A5-6V	5SS1NGB4	1090N5-12V
5SD1NGB2	1090A5-6V	5SS1NGB5	1090N5-28V
5SD1NGB4	1090A5-12V	5SS1NRB1	1090N1-6V
5SD1NGB5	1090A5-28V	5SS1NRB2	1090N1-6V
5SD1NRB1	1090A1-6V	5SS1NRB4	1090N1-12V
5SD1NRB2	1090A1-6V	5SS1NRB5	1090N1-28V
5SD1NRB4	1090A1-12V	5SS1NWB1	1090N4-6V
5SD1NRB5	1090A1-28V	5SS1NWB2	1090N4-6V
5SD1NWB1	1090A4-6V	5SS1NWB4	1090N4-12V
5SD1NWB2	1090A4-6V	5SS1NWB5	1090N4-28V
5SD1NWB4	1090A4-12V	5TD1LAN1	1050QA3
5SD1NWB5	1090A4-28V	5TD1LAN2	1051QA3
5SF2NAB1	1090C3-6V	5TD1LCN1	1050QA2
5SF2NAB2	1090C3-6V	5TD1LCN2	1051QA2
5SF2NAB4	1090C3-12V	5TD1LGX1	1052QA5
5SF2NAB5	1090C3-28V	5TD1LGX2	1053QA5
5SF2NGB1	1090C5-6V	5TD1LRN1	1050QA1
5SF2NGB2	1090C5-6V	5TD1LRN2	1051QA1
5SF2NGB4	1090C5-12V	5TD1LWN1	1050QA4
5SF2NGB5	1090C5-28V	5TD1LWN2	1051QA4
5SF2NRB1	1090C1-6V	5TF2LAN1	1050QC3
5SF2NRB2	1090C1-6V	5TF2LAN2	1051QC3
5SF2NRB4	1090C1-12V	5TF2LCN1	1050QC2
5SF2NRB5	1090C1-28V	5TF2LCN2	1051QC2
5SF2NWB1	1090C4-6V	5TF2LGX1	1052QC5
5SF2NWB2	1090C4-6V	5TF2LGX2	1053QC5
5SF2NWB4	1090C4-12V	5TF2LRN1	1050QC1
5SF2NWB5	1090C3-28V	5TF2LRN2	1051QC1



IDI CROSS REFERENCE

Solico

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FOR NO-CHARGE SAMPLES

Solico Model	IDI Model #	Solico Model	IDI Model #
5TF2LWN1	1050QC4	6504X2	2153QA5
5TF2LWN2	1051QC4	ESBR3401	4303F1
5TF3LAN1	1030QD3	ESBR3411	4303F1
5TF3LAN2	1031QD3	ESBR3431	4303F1
5TF3LGX1	1032QD5	ESBR5131	4304H1
5TF3LGX2	1033QD5	ESBR5501	4305H1
5TF3LRN1	1030QD1	ESBR5511	4304H1
5TF3LWN1	1030QD4	ESBR5531	4304H1
5TF3LWN2	1031QD4	LH-SOLA322-12	5102H3-12V
5TS1LAN1	1050QN3	LH-SOLA322-6	5102H3-5V
5TS1LAN2	1051QN3	LH-SOLR322-6	5102H1-5V
5TS1LCN1	1050QN2	LH-SPG5531	5100H5
5TS1LCN2	1051QN2	LH-SPR5531	5100H1
5TS1LGX1	1052QN5	LH-SPY5531	5100H7
5TS1LGX2	1053QN5	LHS-SOLG322-2V	5101H5
5TS1LRN1	1050QN1	LHS-SOLR322-2V	5101H1
5TS1LRN2	1051QN1	LHS-SOLY322-2V	5101H7
5TS1LWN1	1050QN4	LHSOLA322-6	5102H3-5V
5TS1LWN2	1051QN4	LHSOLG322-12	5102H5-12V
6401N3	2110QA1	LHSOLG322-6	5102H5-5V
6401N4	2111QA1	LHSOLR322-12	5102H1-12V
6402N3	2110QA3	MOUNTING CLIP T-1	4303MC
6402N4	2111QA3	MOUNTING CLIP T-1 3	4304MC
6403N3	2110QA4	QM-121-N3	4700A1
6403N4	2111QA4	QM-122-N3	4700A3
6404X1	2112QA5	QM-123-N3	4700A4
6404X2	2113QA5	QM-124-X1	4702A5
6406N3	2110QA2	RR2LAN1	2330D3
6406N4	2111QA2	RR2LAN1MS	2330QD3
6501N3	2150QA1	RR2LGX1	2332D5
6501N4	2151QA1	RR2LGX1MS	2332QD5
6502N3	2150QA3	RR2LRN1	2330D1
6502N4	2151QA3	RR2LRN1MS	2330QD1
6503N3	2150QA4	RR2LWN1	2330D4
6503N4	2151QA4	RR2LWN1MS	2330QD4
6504X1	2152QA5		



IDI CROSS REFERENCE

Stanley

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Stanley Model	IDI Model #	Stanley Model	IDI Model #
BR5379K	4366C1	SBR3401	4303F1
ESAA3901	4318F3	SBR3411	4303F1
ESAA5701	4308H3	SBR5101	4305H1
ESBG3901	4318F5	SBR5131	4304H1
ESBG5701	4308H5	SBR5501	4305H1
ESBR3901	4318F1	SBR5511	4304H1
ESBR5701	4308H1	SBR5531	4304H1
ESPY5701	4308H7	SBR7851R	4306R1
H1K	4310H1	SPG2201	4307T5
MAA5379K	4366C3	SPG2221	4307T5
MAY5379K	4366C7	SPG2231	4307T5
MBG5379K	4366C5	SPG3331	4303F5
MPG5379K	4366C5	SPG3431	4303F5
MPY5379K	4366C7	SPG5131-AP	4301H5/5
SAA2201	4303F7	SPG5431	4304H5
SAA3431	4303F7	SPG5531	4304H5
SAA5531	4304H7	SPG5531REC	4306D5
SAA5541	4304H7	SPG5633	430495
SAR2201	4307T1	SPG5721	4304H5
SAR2221	4307T1	SPG5731	4304H5
SAR3411	4303F1	SPG7851R	4306R5
SAR3431	4303F1	SPR3301	4303F1
SAR5411	4304H1	SPR3311	4303F1
SAR5431	4304H1	SPR3331	4303F1
SAR5511	4304H1	SPR3431	4303F1
SAR5531	4304H1	SPR5431	4304H1
SAY2201	4307T7	SPR5531	4304H1
SAY3431	4303F7	SPR5531REC	4306D1
SAY5431	4304H7	SPRG5111	4301H1/5
SAY5531	4304H7	SPY2201	4307T7
SAY5531REC	4306D7	SPY2221	4307T7
SAY5721	4305H7	SPY3331	4303F7
SAY5731	4304H7	SPY3431	4303F7
SAY7851R	4306R7	SPY5431	4304H7
SBK2201	4307T1	SPY5531	4304H7
SBK2221	4307T1	SVR5731	4304H1
SBK3431	4303F1	VRPG3312X	4361L1/5
SBR2231	4307T1	VRPG3349S	4361M1/5



IDI CROSS REFERENCE

Ledtronics Model

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Ledtronics Model	IDI Model #	Ledtronics Model	IDI Model #
L200TWGRY	4301H1/5	PCT190TY4	5300E7
L200TWRG3-3C	4361H1/5	PCT200TG4	5300H5
L200TY3-12V13	4302H3-12V	PCT200TG4-5V	5302H5-5V
L200TY3-5V10	4302H3-5V	PCT200TG5	5300H5LC
L200TY5A	4304H7	PCT200TLY5	5300H7LC
LMC200-CG	4375	PCT200TR4	5300H1
LMC200-CR	4371	PCT200TR4-5V	5302H1-5V
LMC200-CWR	4372	PCT200TR5	5300H1LC
LMC200-CY	4377	PCT200TY4	5300H7
MC120C/120R	4303MC	PCT200TY4-5V	5302H3-5V
MC200C/200R	4304MC	PCT230T04	5306H3
PC110T04	5600F3	PCT230TG3-5V	5306H5-5V
PC110TG4	5600F5	PCT230TG4	5306H5
PC110TG4-5V	5602F5-5V	PCT230TR3-5V	5306H1-5V
PC110TG5	5600F5LC	PCT230TR4	5306H1
PC110TR4	5600F1	PCT230TY3-5V	5306H3-5V
PC110TR4-5V	5602F1-5V	PCT230TY4	5306H7
PC110TR5	5600F1LC	PCV190TG4-0S	5381E5
PC110TY4	5600F7	PCV190TR4-0S	5381E1
PC110TY4-5V	5602F3-5V	PCV190TY4-0S	5381E7
PC110TY5	5600F7LC	PCV200T04-0S	5381H3
PC120T04	5650F3	PCV200TG3-5V-0S	5381H5-5V
PC120TG4	5650F5	PCV200TG4-0S	5381H5
PC120TG4-5V	5652F5-5V	PCV200TG5-0S	5381H5LC
PC120TG5	5650F5LC	PCV200TR3-5V-0S	5381H1-5V
PC120TR4	5650F1	PCV200TR4-0S	5381H1
PC120TR4-5V	5652F1-5V	PCV200TR5-0S	5381H1LC
PC120TR5	5650F1LC	PCV200TY3-5V-0S	5381H3-5V
PC120TY4	5650F7	PCV200TY4-0S	5381H7
PC120TY4-5V	5652F3-5V	PCV200TY5-0S	5381H7LC
PC120TY5	5650F7LC	PD50CAI-12V/80-T1	1090QA3-12V
PC190TG4	5380E5	PD50CAI-12V/80-W6	1090A3-12V
PC190TR4	5380E1	PD50CAI-28V/40-T1	1090QA3-28V
PC190TYL	5380E7	PD50CAI-28V/40-W6	1090A3-28V
PC200T04	5380H3	PD50CAN-120VAC-T1	1050QA3
PC200TG3-12V	5380H5-12V	PD50CAN-120VAC-W6	1050A3
PC200TG3-5V	5380H5-5V	PD50CAN-240VAC-T1	1051QA3
PC200TG4	5380H5	PD50CAN-240VAC-W6	1051A3
PC200TG5	5380H5LC	PD50CBI-12V/80-T1	1090QA6-12V
PC200TR3-12V	5380H1-12V	PD50CBI-12V/80-W6	1090A6-12V
PC200TR3-5V	5380H1-5V	PD50CBI-28V/40-T1	1090QA6-28V
PC200TR4	5380H1	PD50CBI-28V/40-W6	1090A6-28V
PC200TR5	5380H1LC	PD50CBN-120VAC-T1	1052QA6
PC200TWRG1	5380H1/5	PD50CBN-120VAC-W6	1052A6
PC200TY3-12V	5380H3-12V	PD50CBN-240VAC-T1	1053QA6
PC200TY3-5V	5380H3-5V	PD50CBN-240VAC-W6	1053A6
PC200TY4	5380H7	PD50CGI-12V/80-T1	1090QA5-12V
PC200TY5	5380H7LC	PD50CGI-12V/80-W6	1090A5-12V
PCT190TG4	5300E5	PD50CGI-28V/40-T1	1090QA5-28V
PCT190TR4	5300E1	PD50CGI-28V/40-W6	1090A5-28V



IDI CROSS REFERENCE

Ledtronics Model

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Ledtronics Model	IDI Model #	Ledtronics Model	IDI Model #
PPS251TWRG1-2V-WS	5100H1/5	PS50CRN-120VAC-W6	1030D1
PPS251TY3-2V-T	5101H7	PS50CRN-240VAC-T1	10310D1
PPS251TY3-2V-W6	5100H7	PS50CRN-240VAC-W6	1031D1
PPS251TY3-2V-WS	5100H7LC	PS50CWI-12V/80-T1	1090QD4-12V
PPS251TY3-5V/10-T	5101H3-5V	PS50CWI-12V/80-W6	1090D4-12V
PPS251TY3-5V/10-W6	5102H3-5V	PS50CWI-28V/40-T1	1090QD4-28V
PPS251TY5-12V/10-W6	5102H3-12V	PS50CWI-28V/40-W6	1090D4-28V
PPS251TY5-2V-T	5101H7LC	RL280G3	4306D17
PS50CAI-12V/80-T1	1090QD3-12V	RL280R3	4306D11
PS50CAI-12V/80-W6	1090D3-12V	RL280Y3	4306D15
PS50CAI-28V//40-W6	1090D3-28V	RMC120-CA	4333
PS50CAI-28V/40-T1	1090QD3-28V	RMC120-CG	4335
PS50CAN-120VAC-T1	1030QD3	RMC120-CR	4331
PS50CAN-120VAC-W6	1030D3	RMC120-CWR	4332
PS50CAN-240VAC-T1	1031QD3	RMC120-CY	4337
PS50CAN-240VAC-W6	1031D3	RMC200-CA	4313
PS50CBN-120VAC-T1	1032QD6	RMC200-CG	4315
PS50CBN-120VAC-W6	1032D6	RMC200-CR	4311
PS50CBN-240VAC-T1	1033QD6	RMC200-CWR	4312
PS50CBN-240VAC-W6	1033D6	RMC200-CY	4317
PS50CGI-12V/80-T1	1090QD5-12V	RPC310G3	5620R7
PS50CGI-12V/80-W6	1090D5-12V	RPC310R2	5620R1
PS50CGI-28V/40-T1	1090QD5-28V	RPC310Y3	5620R5
PS50CGI-28V/40-W6	1090D5-28V	RPV310G3	5610R7
PS50CGN-120VAC-T1	1032QD5	RPV310QR3	5610R3
PS50CGN-120VAC-W6	1032D5	RPV310R2	5610R1
PS50CGN-240VAC-T1	1033QD5	RPV310Y3	5610R5
PS50CGN-240VAC-W6	1033D5	SMC200-CA	4323
PS50CRI-12V/80-T1	1090QD1-12V	SMC200-CG	4325
PS50CRI-12V/80-W6	1090D1-12V	SMC200-CR	4321
PS50CRI-28V/40-T1	1090QD1-28V	SMC200-CWR	4322
PS50CRI-28V/40-W6	1090D1-28V	SMC200-CY	4327
PS50CRN-120VAC-T1	1030QD1		



IDI CROSS REFERENCE

Qual Tech

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Qual Tech (GI Opto) Model	IDI Model #	Qual Tech (GI Opto) Model	IDI Model #
HLMP-0300	4306R1	MV51124	4306R1
HLMP-0301	4306R1	MV5153	4304H3
HLMP-0400	4306R7	MV52	4307T5
HLMP-0401	4306R7	MV52124	4306R5
HLMP-0503	4306R5	MV52154	4304S5
HLMP-0504	4306R5	MV5252	4305H5
HLMP-3750	4308H1	MV5253	4305H5
HLMP-3850	4308H7	MV5254	4305H5
HLMP-3950	4308H5	MV5274C	4303F5
HLMP-4100	4310H1	MV53	4307T7
HLMP-4101	4310H1	MV53123	4306D17
HLMP-D105	4308H1	MV53124	4306R7
HLMP-M200	4309K1	MV53134	4304S7
HLMP-M201	4309K1	MV53154	4304S7
HLMP-M300	4309K7	MV5352	4305H7
HLMP-M301	4309K7	MV5353	4304H7
HLMP-M500	4309K5	MV5354	4305H7
HLMP-M501	4309K5	MV53641	4303F7
HLMP1700	4300F1LC	MV53642	4303F7
HLMP1719	4300F7LC	MV5374C	4303F7
HLMP4700	4300H1LC	MV54	4307T1
HLMP4719	4300H7LC	MV54123	4306D15
MP52	4304MC	MV54154	4304S5
MV2454	4300H5LC	MV5437	4361H1/5
MV3450	4308H5	MV54643	4303F5
MV3750	4308H1	MV54644	4303F5
MV50	4307T1	MV5491	4301H1/5
MV50154	4304S1	MV5491A	4301H1/5
MV5020	4304H1	MV57123	4306D11
MV5021	4304H1	MV57154	4304S1
MV5022	4304H1	MV5752	4305H1
MV5023	4304H1	MV5753	4304H1
MV5024	4304H1	MV5754	4305H1
MV5025	4304H1	MV57640	4303F1
MV5026	4304H1	MV57641	4303F1
MV5050	4304H1	MV57642	4303F1
MV5051	4304H1	MV60538	4300E1NF
MV5052	4304H1	MV63538	4300E7NF
MV5053	4304H1	MV64520	4305H5
MV5055	4304H1	MV64521	4305H5
MV5056	4304H1	MV64530	4304H5
MV50640	4303F1	MV64531	4304H5
MV5074C	4303F1	MV64538	4300E5NF
MV5075C	4303F1	MV6461	4301F1/5
MV5094	4301H1/1		



IDI CROSS REFERENCE

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Sylvania Model

Sylvania Model	IDI Model #	Sylvania Model	IDI Model #
30099	2803	30174	3125
30120	2811	30175	3126
30122	2815	30176	3127
30124	2816	38001	3011
30125	2812	38002	3017
30126	2813	38003	3014
30150	3001	38004	3015
30151	3002	38005	3016
30152	3062	38007	3013
30153	3040	38071	3021
30160	3111	38072	3027
30161	3112	38073	3024
30162	3113	38074	3025
30163	3114	38075	3026
30164	3115	4100	4100
30165	3116	4110	4110
30166	3117	4111	4111
30170	3121	4120	4120
30171	3122	4130	4130
30172	3123	4140	4140
30173	3124		

Eaton (Tec-Lite) Model

Eaton (Tec-Lite) Model	IDI Model #	Eaton (Tec-Lite) Model	IDI Model #
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135L1C	5352T1-5V	137L2C	5302H5-5V
135L2A	5350T5	137L3A	5300H7
135L2C	5352T5-5V	137L3C	5302H3-5V
135L3A	5350T7	138L1111B	5640H1
135L3C	5352T3-5V	138L2222B	5640H5
136L1A	5380H1	138L3333B	5640H7
136L1C	5380H1-5V	139L1	5650F1
136L2A	5380H5	139L2	5650F5
136L2C	5380H5-5V	139L3	5650F7
136L3A	5380H7	141L11	5680F1;1
136L3C	5380H3-5V	141L22	5680F5;5
137L1A	5300H1	141L33	5680F7;7
137L1C	5302H1-5V		



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Panasonic Model

Panasonic Model	IDI Model #	Panasonic Model	IDI Model #
LN21	4304H1	LN31GPSL	4304H5
LN21RCPH	4305H1	LN37GP	4304S5
LN21RCPHL	4305H1	LN38GP	4303F5
LN21RCPSL	4305H1	LN41	4304H7
LN21RPH	4304H1	LN41YGPHL	4305H7
LN21RPHL	4304H1	LN41YPH	4304H7
LN21RPSL	4304H1	LN41YPHL	4304H7
LN27RP	4304S1	LN41YPSL	4304H7
LN28RP	4303F1	LN47YP	4304S7
LN31	4304H5	LN48YP	4303F7
LN31GCPHL	4305H5	LN81RPH	4304H1
LN31GPH	4304H5	LN81RPHL	4304H3
LN31GPHL	4304H5		

Rohm Model

Rohm Model	IDI Model #	Rohm Model	IDI Model #
SLR-37DU3	4303F3	SLR-56VR3	4304H1
SLR-37MG3	4303F5	SLR-56YY3	4304H7
SLR-37VR3	4303F1	SLR47-MG3	4300E5NF
SLR-37YY3	4303F7	SLR47-VR3	4300E1NF
SLR-56DU3	4304H3	SLR47-YY3	4300E7NF
SLR-56MG3	4304H5	SPR-54MVN	4361H1/5

Lumex Model

Lumex Model	IDI Model #	Lumex Model	IDI Model #
ITL-LX10CSB	10CSB	ITL-LX48ESB	48ESB
ITL-LX10ESB	10ESB	ITL-LX48PSB	48PSB
ITL-LX120PSB	120PSB	ITL-LX4ESB	4ESB
ITL-LX12ESB	12ESB	ITL-LX5ESB	5ESB
ITL-LX12PSB	12PSB	ITL-LX5SLB	5SLB
ITL-LX14FSB	14FSB	ITL-LX60PSB	60PSB
ITL-LX16CSB	16CSB	ITL-LX6ESB	6ESB
ITL-LX16ESB	16ESB	ITL-LX6PSB	6PSB
ITL-LX18ESB	18ESB	ITL-LX6SLB	6SLB
ITL-LX24CSB	24CSB	SSE-LXH101ID	5380H1
ITL-LX24ESB	24ESB	SSE-LXH600ID-150	5100H1
ITL-LX24PSB	24PSB	SSF-LX555-2007RD5V	5352T1-5VLC
ITL-LX28ESB	28ESB	SSF-LX555-2101ID	5350T1
ITL-LX28PSB	28PSB	SSF-LX555-2301GD	5350T5



IDI CROSS REFERENCE

Lumex Model

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Lumex Model	IDI Model #	Lumex Model	IDI Model #
SSF-LX555-2303GD5V	5352T5-5VLC	SSL-LX3054LGD	4300F5LC
SSF-LX555-2401YD	5350T7	SSL-LX3054LID	4300F1LC
SSF-LX555-2403YD5V	5352T3-5VLC	SSL-LX3054LYD	4300F7LC
SSF-LX555-3007RD5V	5372T1-5VLC	SSL-LX3054YD	4303F7
SSF-LX555-3101ID	5370T1	SSL-LX5063GD	4304S5
SSF-LX555-3301GD	5370T5	SSL-LX5063ID	4304S1
SSF-LX555-3303GD5V	5372T5-5VLC	SSL-LX5063YD	4304S7
SSF-LX555-3401YD	5370T7	SSL-LX5091GD	4304H5
SSF-LX555-3403YD5V	5372T3-5VLC	SSL-LX5091RD	4304H1
SSF-LXH100GD	5300H5	SSL-LX5091YD	4304H7
SSF-LXH100HGW	5300H1/5	SSL-LX5093GD	4304H5
SSF-LXH100ID	5300H1	SSL-LX5093GGD	4301H5/5
SSF-LXH100LGD	5300H5LC	SSL-LX5093GT-11	4305H5
SSF-LXH100LID	5300H1LC	SSL-LX5093ID	4304H1
SSF-LXH100LYD	5300H7LC	SSL-LX5093IGW	4301H1/5
SSF-LXH100YD	5300H7	SSL-LX5093IID	4301H1/1
SSF-LXH101GD	5380H5	SSL-LX5093IT-11	4305H1
SSF-LXH101LGD	5380H5LC	SSL-LX5093LGD	4300H5LC
SSF-LXH101LID	5380H1LC	SSL-LX5093LID	4300H1LC
SSF-LXH101LYD	5380H7LC	SSL-LX5093LY2	4300H7LC
SSF-LXH101YD	5380H7	SSL-LX5093YD	4304H7
SSF-LXH103GD	5650F5LC	SSL-LX5099IGW	4361H1/5
SSL-LX3054GD	4303F5	SSL-LXA223GD	4307T5
SSL-LX3054ID	4303F1	SSL-LXA223ID	4307T1
SSL-LX3054IGW	4301F1/5	SSL-LXA223YD	4307T7



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